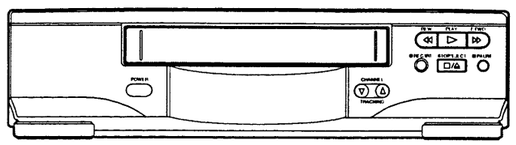
HITACHI

SERVICE MANUAL

TK | No. 4705E

VT-MX421A
VT-MX421AC



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DECK MECHANISM SECTION

See the VT-MX221A/MX221AC service manual (No. 4703E) for the deck mechanism section, since it is the same as that in new models.

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VHS

This video deck is VHS type video recorder. For proper operation, only the VHS type cassette must be used.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

VIDEO CASSETTE RECORDER

March 1997 Image & Information Media Systems Division, Tokai

MAIN SECTION

VIDEO CASSETTE RECORDER

VT-MX421A / VT-MX421AC

MAIN SECTION

- Specifications
- Preparation for Servicing
- Adjustment Procedures
- Schematic Diagrams
- CBA' s

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SPECIFICATIONS

Description	Unit	Minimum	Nominal	Maximum	Condition
1. Video					
1-1 Video Output (R/P)	Vp-p	0.8	1.0	1.2	
1-2 Video S/N Y (R/P)	dB	42	48		SP Mode
1-3 Video Color S/N AM (R/P)	dB	35	44		SP Mode
1-4 Video Color S/N PM (R/P)	dB	31	38		SP Mode
1-5 Resolution (R/P)	Line	210	230		SP Mode
2. Servo					
2-1 Jitter Low (R/P)	µsec		0.04	0.12	SP Mode
2-2 Wow & Flutter (R/P)	%		0.2	0.5	SP Mode
3. Normal Audio					
3-1 Output (R/P)	dBS	-10	-5	-2	SP Mode
3-2 S/N (R/P)	dB	41	47		JIS A
3-3 Distortion (R/P)	%		1.5	4.0	SP Mode
3-4 Freq. response (R/P) at 100Hz	dB	-6.0	-3.0		SP Mode
(-20dB ref. 1kHz) at 8kHz	dB	-6.0	-2.0		SP Mode
4. Tuner					
4-1 Video Output (E-E)	Vp-p	0.8	1.0	1.2	E-E Mode
4-2 Video S/N (E-E)	dB	40	45		E-E Mode
4-3 Audio Output (E-E)	dBS	-9	-6	-3	E-E Mode
4-4 Audio S/N (E-E)	dB	40	50		JIS A

Note: Nominal specs represent the design specs. All units should be able to approximate these. Some will exceed and some may drop slightly below these specs. Limit specs represent the absolute worst condition that still might be considered acceptable; In no case should a unit fail to meet limit specs.

IMPORTANT SAFETY PRECAUTIONS

Product Safety Notice

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by a ⚠ on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The Product's Safety is under review continuously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are carefully inspected to confirm with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Precautions during Servicing

A. Parts identified by the ⚠ symbol are critical for safety. Replace only with part number specified.

B. In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements.

Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.

C. Use specified internal wiring. Note especially:

1) Wires covered with PVC tubing

2) Double insulated wires

3) High voltage leads

D. Use specified insulating materials for hazardous live parts. Note especially:

1) Insulation tape

2) PVC tubing

3) Spacers

4) Insulators for transistors

E. When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.

F. Observe that the wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).

G. Check that replaced wires do not contact sharp edges or pointed parts.

H. When a power cord has been replaced, check that 5 - 6 kg of force in any direction will not loosen it.

I. Also check areas surrounding repaired locations.

J. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

K. Crimp type wire connector

The power transformer uses crimp type connectors which connect the power cord and the primary side of the transformer. When replacing the transformer, follow these steps carefully and precisely to prevent shock hazards.

Replacement procedure

1) Remove the old connector by cutting the wires at a point close to the connector.

Important: Do not re-use a connector. (Discard it.)

2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

4) Use a crimping tool to crimp the metal sleeve at its center. Be sure to crimp fully to the complete closure of the tool.

L. When connecting or disconnecting the internal connectors, first, disconnect the AC plug from the AC outlet.

Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts, and wires have been returned to their original positions. Afterwards, do the following tests and confirm the specified values to verify compliance with safety standards.

1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

Table 1 : Ratings for selected area

AC Line Voltage	Clearance Distance (d) (d')
120 V	≥ 3.2 mm (0.126 inches)

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

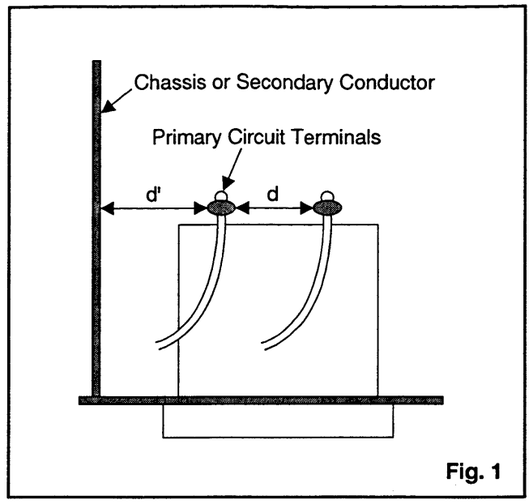


Fig. 1

2. Leakage Current Test

Confirm the specified (or lower) leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.) is lower than or equal to the specified value in the table below.

Measuring Method (Power ON) :

Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across the terminals of load Z. See Fig. 2 and the following table.

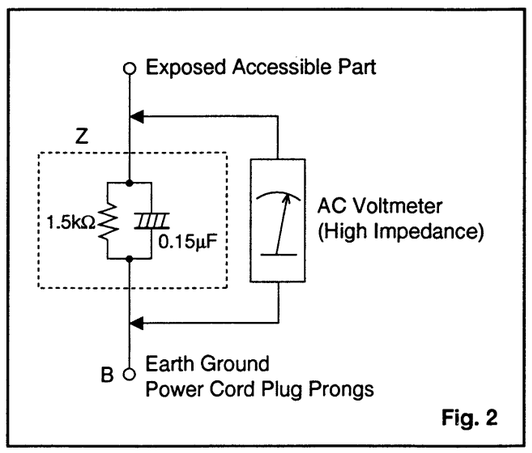


Fig. 2

Table 2 : Leakage current ratings for selected areas

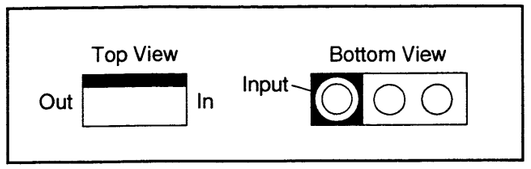
AC Line Voltage	Load Z	Leakage Current (i)	Earth Ground (B) to:
120 V	0.15μF CAP. & 1.5kΩ RES. Connected in parallel	i ≤ 0.5mA rms	Exposed accessible parts

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

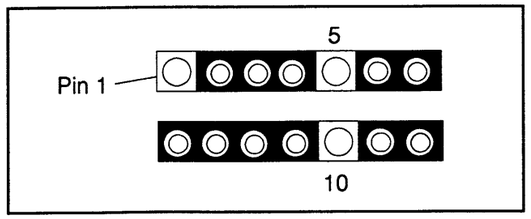
STANDARD NOTES FOR SERVICING

Circuit Board Indications

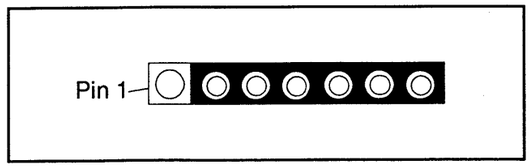
a. The output pin of the 3 pin Regulator ICs is indicated as shown.



b. For other ICs, pin 1 and every fifth pin are indicated as shown.

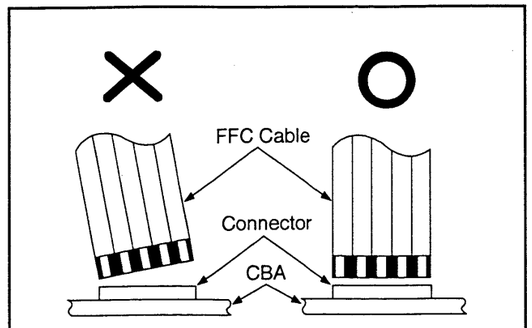


c. The 1st pin of every male connector is indicated as shown.



Instructions for Connectors

1. When you connect or disconnect the FFC (Flexible Foil Connector) cable, be sure to first disconnect the AC cord.
2. FFC (Flexible Foil Connector) cable should be inserted parallel into the connector, not at an angle.



How to Remove / Install Flat Pack-IC

1. Removal

With Hot-Air Flat Pack-IC Desoldering Machine:

(1) Prepare the hot-air flat pack-IC desoldering machine, then apply hot air to the Flat Pack-IC (about 5 to 6 seconds). (Fig. S-1-1)

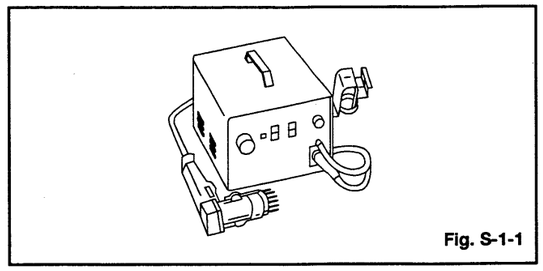


Fig. S-1-1

(2) Remove the flat pack-IC with tweezers while applying the hot air.

(3) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)

(4) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

Caution:

1. Do not supply hot air to the chip parts around the flat pack-IC for over 6 seconds because damage to the chip parts may occur. Put masking tape around the flat pack-IC to protect other parts from damage. (Fig. S-1-2)
2. The flat pack-IC on the CBA is affixed with glue, so be careful not to break or damage the foil of each pin or the solder lands under the IC when removing it.

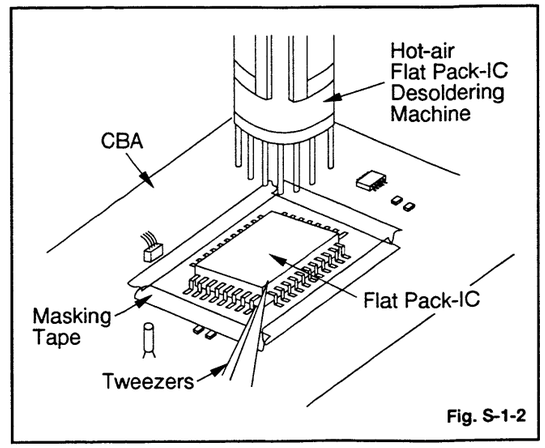


Fig. S-1-2

With Soldering Iron:

(1) Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)

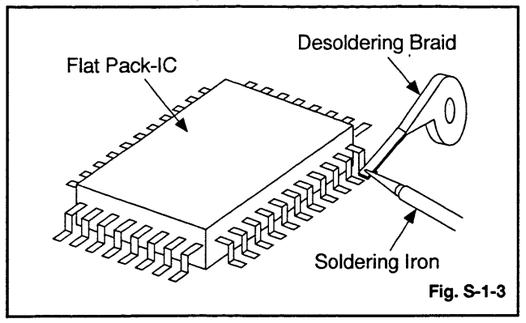


Fig. S-1-3

(2) Lift each lead of the flat pack-IC upward one by one, using a sharp pin or wire to which solder will not adhere (iron wire). When heating the pins, use a fine tip soldering iron or a hot air desoldering machine. (Fig. S-1-4)

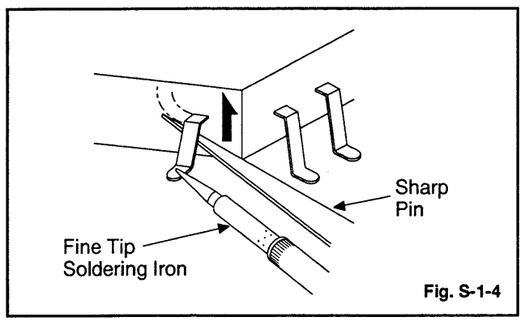


Fig. S-1-4

(3) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-8)

(4) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

With Iron Wire:

(1) Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)

(2) Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.

(3) While heating the pins using a fine tip soldering iron or hot air blower, pull up the wire as the solder melts so as to lift the IC leads from the CBA contact pads as shown in Fig.S-1-5.

(4) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)

(5) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

Note:

When using a soldering iron, care must be taken to ensure that the flat pack-IC is not being held by glue. When the flat pack-IC is removed from the CBA, handle it gently because it may be damaged if force is applied.

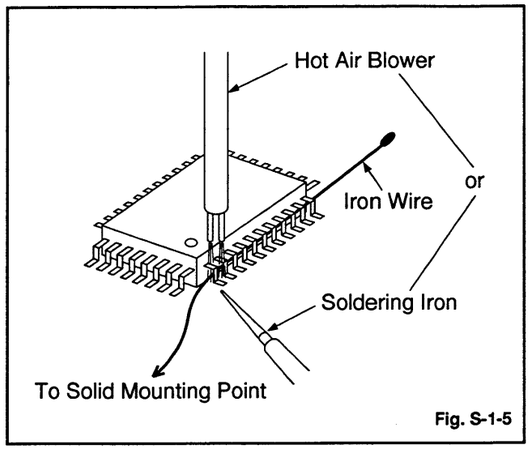


Fig. S-1-5

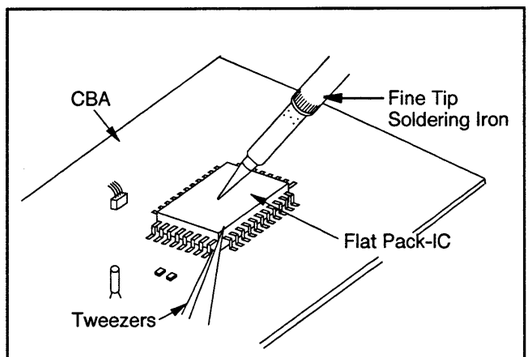


Fig. S-1-6

2. Installation

(1) Using desoldering braid, remove the solder from the foil of each pin of the flat pack-IC on the CBA so you can install a replacement flat pack-IC more easily.

(2) The " ● " mark on the flat pack-IC indicates pin 1. (See Fig. S-1-7.) Be sure this mark matches the 1 on the PCB when positioning for installation. Then pre- solder the four corners of the flat pack-IC. (See Fig. S-1-8.)

(3) Solder all pins of the flat pack-IC. Be sure that none of the pins have solder bridges.

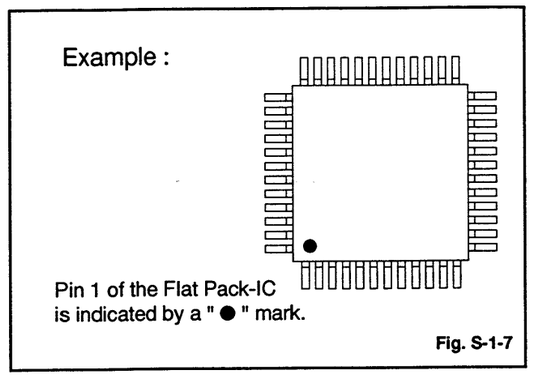


Fig. S-1-7

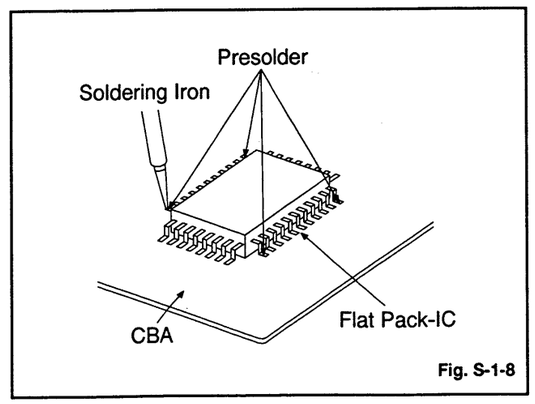


Fig. S-1-8

Instructions for Handling Semiconductors

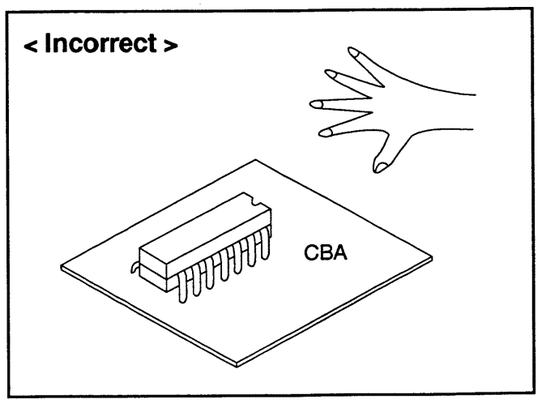
Electrostatic breakdown of the semiconductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

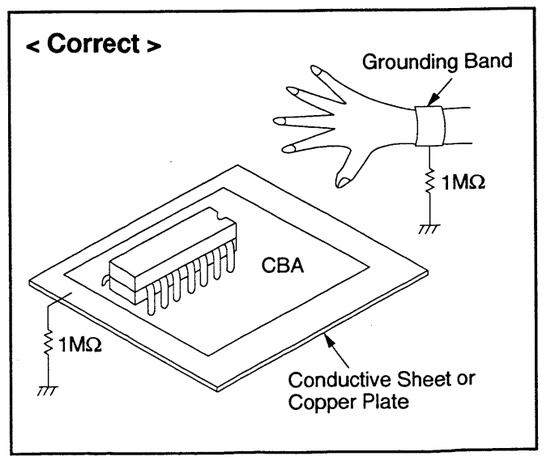
1. Ground for Human Body

Be sure to wear a grounding band (1MΩ) that is properly grounded to remove any static electricity that may be charged on the body.

2. Ground for Workbench

Be sure to place a conductive sheet or copper plate with proper grounding (1MΩ) on the workbench or other surface, where the semiconductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semiconductors with your clothing.





PREPARATION FOR SERVICING

How to Use U15 Deck Extension Cable

(1) Remove the Deck Mechanism Assembly. If needed, remove the Main CBA from the chassis. Refer to "Disassembly Instructions" on pg. 1-6-1.

(2) Connect Main CBA and Deck with U15 Deck Extension Cable (A) as shown in Fig. 1. And connect Main CBA and Deck with U15 Deck Extension Cable (B) as shown in Fig. 1.
(U15 Deck Extension Cable: 7069181)

Note: There are 3 types of U15 Deck Extension Cable (A). They are for 2 Head, 4 Head, and Hi-Fi. Use a connector indicated as shown. Be careful not to let the unused connector contact other parts.

Note: Some noise will be present in the playback picture when the extension cable is used.

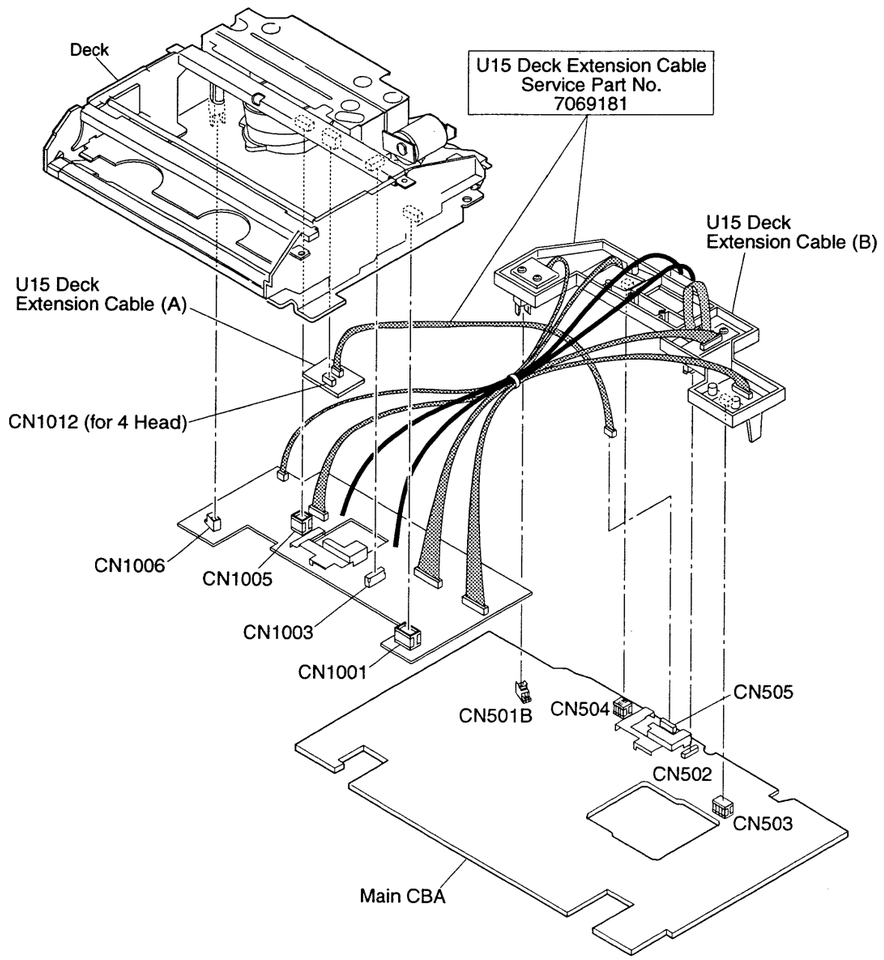


Fig. 1

How to Enter the Service Mode

Note: When the unit is set in the service mode, the display will keep blinking.

About Optical Sensors

Caution:

An optical sensor system is used for the Tape Start and End Sensors on this equipment. Carefully read and follow the instructions below. Otherwise the unit may operate erratically.

What to do for preparation

Insert a tape into the Deck Mechanism Assembly and press the PLAY button. The tape will be loaded into the Deck Mechanism Assembly. Make sure the power is on, connect TP502 (SENSOR INHIBITION) to TP501 (GROUND). This will stop the function of Tape Start Sensor, Tape End Sensor and Reel Sensors. (If these TPs are connected before plugging in the unit, the function of the sensors will stay valid.) See Fig. 2.

Note: Because the Tape End Sensors are inactive, do not run a tape all the way to the start or the end of the tape to avoid tape damage.

About REC-Safety Switch

Caution:

The REC-Safety Switch is directly mounted on the Main CBA. When the Deck Mechanism Assembly is removed from the Main CBA for servicing, this switch does not work automatically.

What to do for preparation

In order to record, press the Rec button while pushing REC-SAFETY SW on the Main CBA. See Fig. 2.

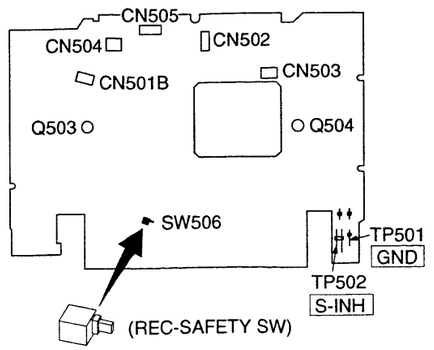
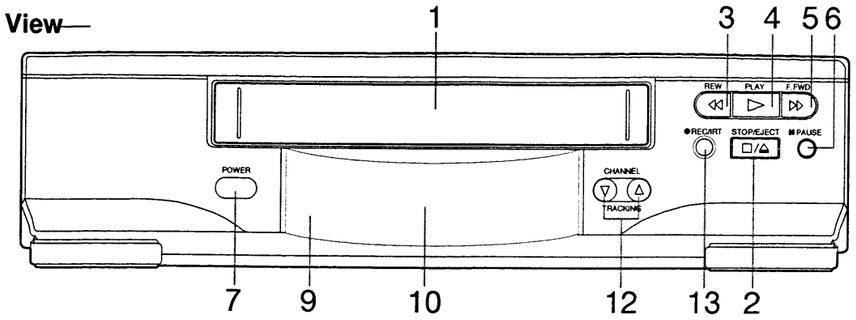


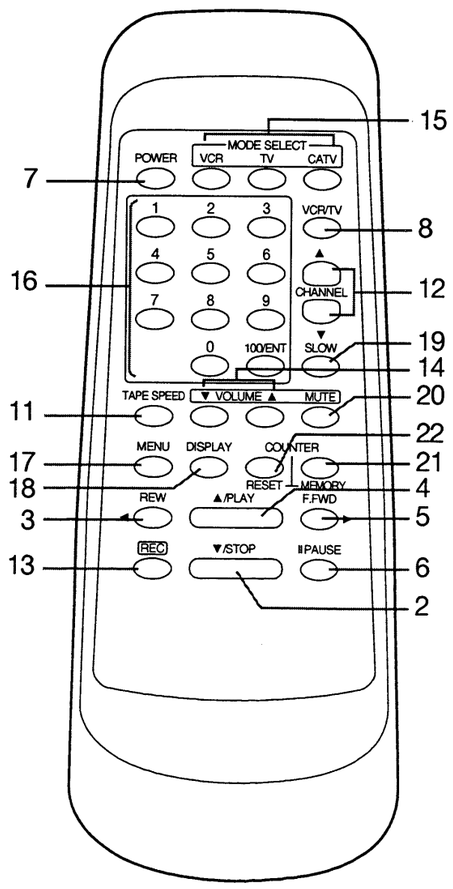
Fig. 2

OPERATING CONTROLS AND FUNCTIONS

—Front View—



—Remote Control View—



1. Cassette Compartment

2. STOP button– Press to stop the tape motion.

EJECT button– Press to remove a tape from the VCR. (only on the VCR)

▼ button– Press to enter digits when setting program (for example: setting clock or timer program). Press to select setting modes from on screen menu. (only on the remote control)

3. REW button– Press to rewind the tape, or to view the picture rapidly in reverse during the playback mode. (Rewind Search)

◄ button– Press to cancel a setting of timer program. Press to correct digits when setting program (for example: setting clock or timer program). (only on the remote control)

4. PLAY button– Press to begin playback.

▲ button– Press to enter digits when setting program (for example: setting clock or timer program). Press to select setting modes from on screen menu. (only on the remote control)

5. F.FWD button– Press to rapidly advance the tape, or view the picture rapidly in forward during playback. (Forward Search)

► button– When setting program (for example: setting clock or timer program), press to determine your selection and proceed to a next step you want to input. Press to determine setting modes from on screen menu. (only on the remote control)

6. PAUSE button– Press to temporarily stop the tape during recording or to view a still picture during playback.

Frame Advance function– Press to advance the picture by one frame during the still mode.

7. POWER button– Press to turn VCR on and off. Press to activate a timer recording.

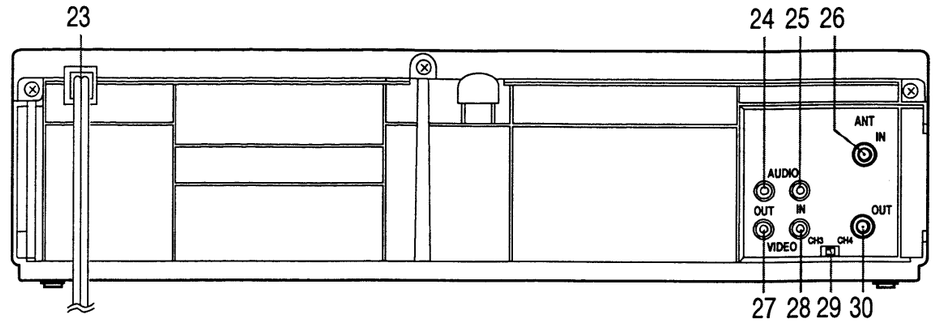
8. VCR/TV button– Press to select TV or VCR mode.

VCR position: to view playback, to monitor video recordings or watch TV using the VCR tuner.

TV position: to watch TV or to view one program while recording another.

9. Remote sensor window– Receives the infrared signals from the remote control.

—Rear View—



10. Digital display–

11. TAPE SPEED button– Press to set desired recording speed : SP/LP/SLP.

12. CHANNEL buttons– Press to select desired channels for viewing or recording.

Tracking function– Press to minimize video 'noise' (lines or dots on screen) during playback or slow mode. (only on the VCR)

Press to stabilize the picture in the Still mode when the picture begins to vibrate vertically.

13. REC button– Press to begin manual recording.

IRT button– Press to activate Instant Recording Timer. (only on the VCR)

14. VOL button– Press to adjust the desired TV's volume level by using either ▲ or ▼ button.

15. Mode Select buttons

CATV button–

TV button–

VCR button–

16. NUMBER buttons– Press to select desired channels for viewing or recording. To select channels from 1 to 9, first press "0" button then 1 to 9.

100/ENT button– When selecting cable channels which are more than 100, press this button first, then press the last two digits. (To select channel 125, first press "100/ENT" button then press "2" and "5").

17. MENU button– Press to display menus on the TV screen. (only on the remote control)

18. DISPLAY button– Press to display the remain, the counter, or the current channel number and current time on the TV screen. (only on the remote control)

19. SLOW button– Press to reduce the playback speed. Slow speed can be controlled by pressing F.FWD button (faster) or REW button (slower).

20. MUTE button– Press to mute the TV's sound. Press it again to resume the sound.

21. COUNTER MEMORY button– Press to set counter memory on and off.

22. COUNTER RESET button– Press to reset counter to 0:00:00. Press to add or delete channel numbers during channel preset.

23. Power cord– Connect to a standard AC outlet (120V/60Hz).

24. AUDIO OUT jack– Connect to the audio input jack of your audio equipment or another VCR.

25. AUDIO IN jack– Connect to the audio output jack of your audio equipment or another VCR.

26. ANT. IN terminal– Connect to an antenna or CATV.

27. VIDEO OUT jack– Connect to a video input jack of your video camera or another VCR.

28. VIDEO IN jack– Connect to a video output jack of your video camera or another VCR.

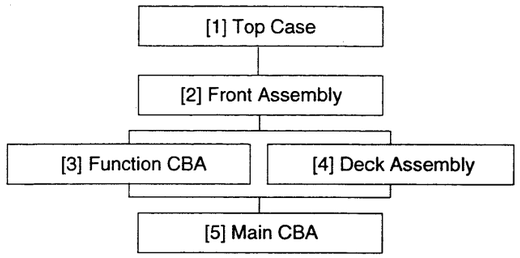
29. CH3/CH4 selector switch– Use to select a video output channel (3 or 4) for playback from the VCR.

30. ANT. OUT terminal– Connect to an antenna input terminal of your TV.

CABINET DISASSEMBLY INSTRUCTIONS

1. Disassembly Flowchart

This flowchart indicates the disassembly steps to gain access to item(s) to be serviced. When reassembling, follow the steps in reverse order. Bend, route, and dress the cables as they were originally.



Disassembly Method

ID/ LOC. No.	PART	REMOVAL		
		Fig. No.	REMOVE/ *UNHOOK/UNLOCK/ RELEASE/UNPLUG/ DESOLDER	Note
[1]	Top Case	1	3(S-1)	-
[2]	Front Assembly	2, 3	*7(L-1)	1
[3]	Function CBA	2, 4	*(L-2), (CN507)	2
[4]	Deck Assembly	5	7(S-2), (CN501B, CN502, CN503, CN504, CN505)	3
[5]	Main CBA	4, 6	3(S-3), *(L-3)	4
↓ ①	↓ ②	↓ ③	↓ ④	↓ ⑤

①: Identification (location) No. of parts in the figures

②: Name of the part

③: Figure Number for reference

④: Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P=Spring, L=Locking Tab, S=Screw,
CN=Connector
*=Unhook, Unlock, Release, Unplug, or Desolder
e.g. 2(S-2) = two Screws (S-2),
2(L-2) = two Locking Tabs (L-2)

⑤:Refer to "Reference Notes."

Reference Notes

CAUTION: Locking Tabs (L-1) are fragile. Be careful not to break them.

1. Release 7 Locking Tabs (L-1). To do this, first release three Locking Tabs (A) at the bottom, and then four Locking Tabs (B) at the top. (Fig. 2, 3)
2. Disconnect Connector (CN507) to remove Function CBA. Hold Main CBA while pulling up Function CBA. (Fig. 4)
3. Remove 7 Screws (S-2). Then slowly lift Deck Assembly up. Lifting Deck Assembly disconnects 5 Connectors (CN501B, CN502, CN503, CN504, CN505). (Fig. 5)
4. Always reinstall screws (S-3) when reassembling the unit. These screws are critical for proper shielding of the Main CBA.

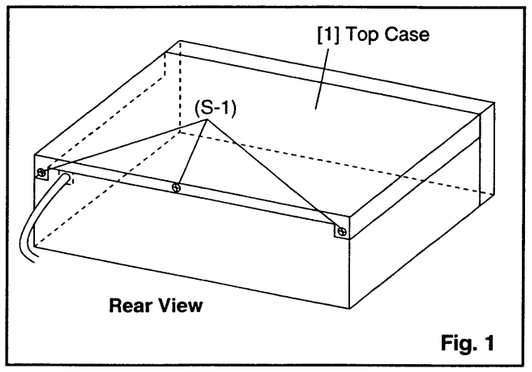


Fig. 1

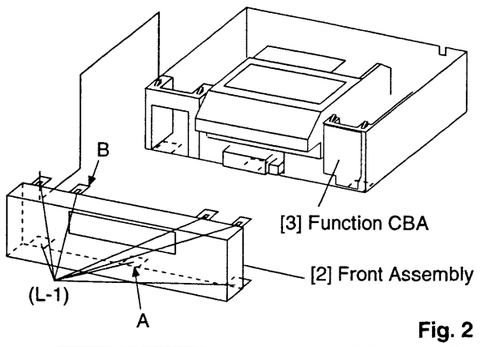


Fig. 2

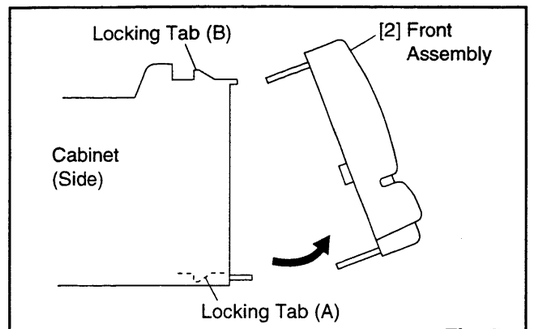


Fig. 3

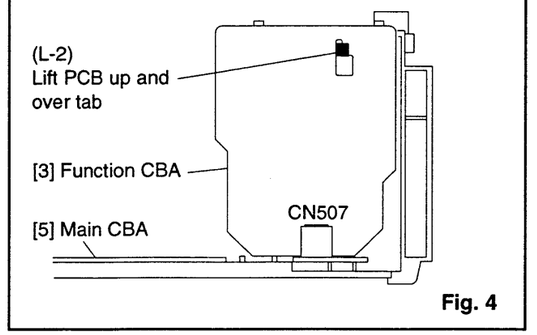


Fig. 4

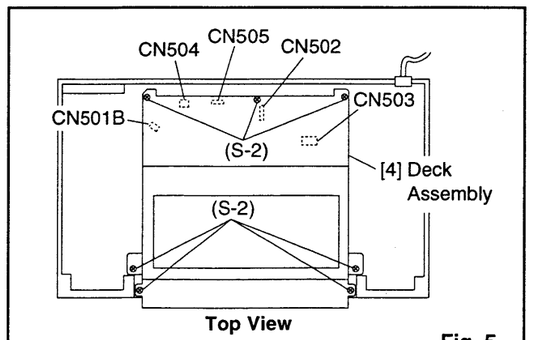


Fig. 5

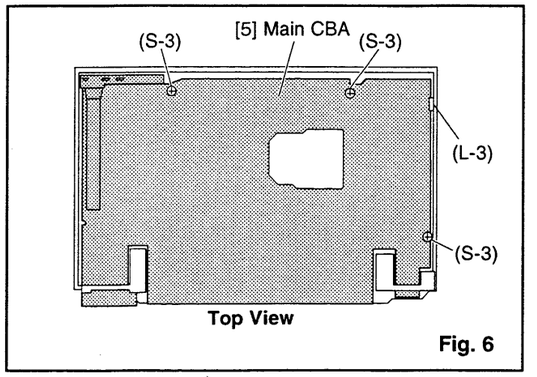


Fig. 6

ELECTRICAL ADJUSTMENT INSTRUCTIONS

General Note: "CBA" is an abbreviation for "Circuit Board Assembly".

NOTE: Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to do these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.

Test Equipment Required

1. Oscilloscope: Dual-trace with 10:1 probe, V-Range: 0.001~50V/Div., F-Range: AC~DC-20MHz
2. Alignment Tape (MH-1)

Head Switching Position Adjustment

Purpose: To determine the Head Switching point during playback.

Symptom of Misadjustment: May cause Head Switching noise or vertical jitter in the picture.

Test Point	Adj. Point	Mode	Input
TP751(V-OUT) TP302(RF-SW) TP501(GND)	VR501 (Switching Point) (MAIN CBA)	PLAY (SP)	—
Alignment Tape	**Measurement Equipment**	**Spec.**	
MH-1	Oscilloscope	6.5H±1H (412.7μs±60μs)	

Connections of Measurement Equipment

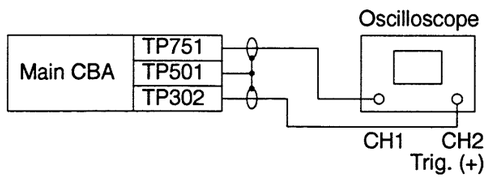
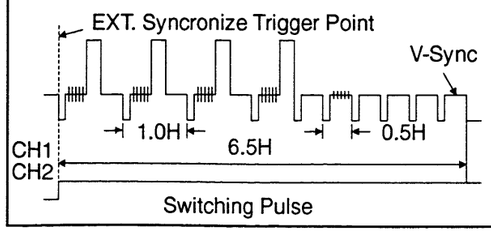


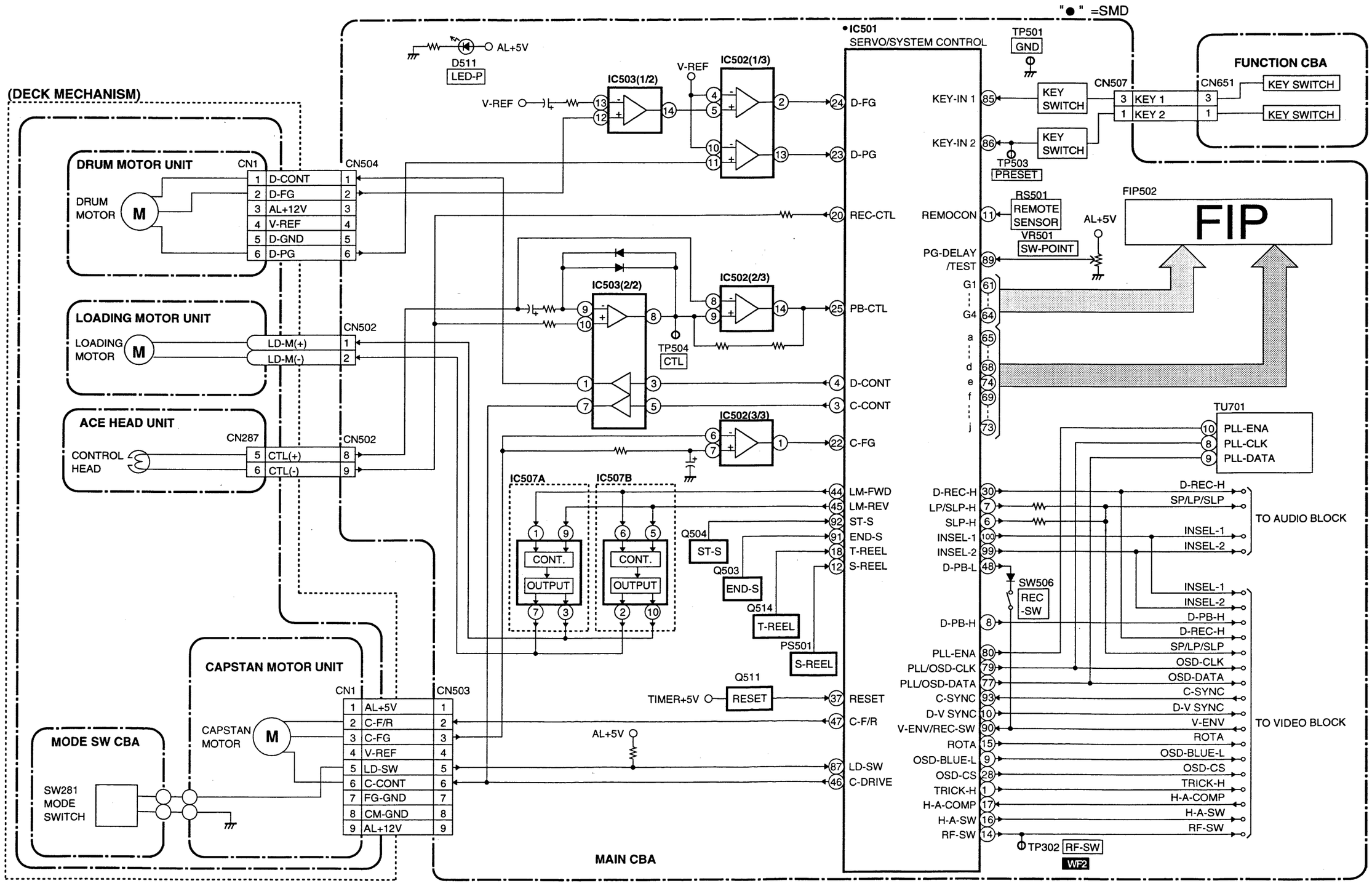
Figure 1



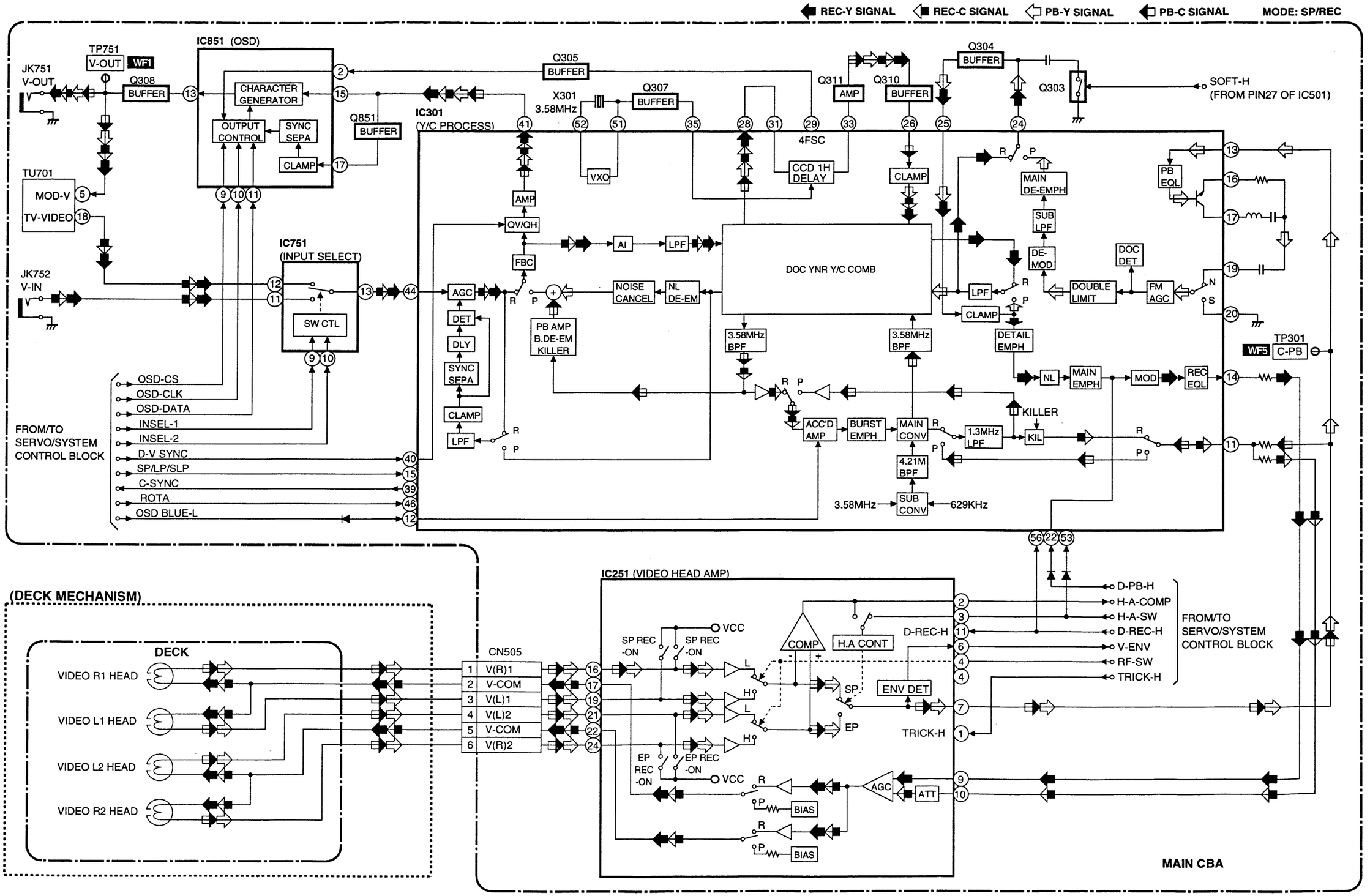
Reference Notes: Play back the Alignment tape and adjust VR501 so that the V-sync front edge of the CH1 video output waveform is out the 6.5H(412.7μs) delayed position from the rising edge of the CH2 head switching pulse waveform.

Servo/System Control Block Diagram

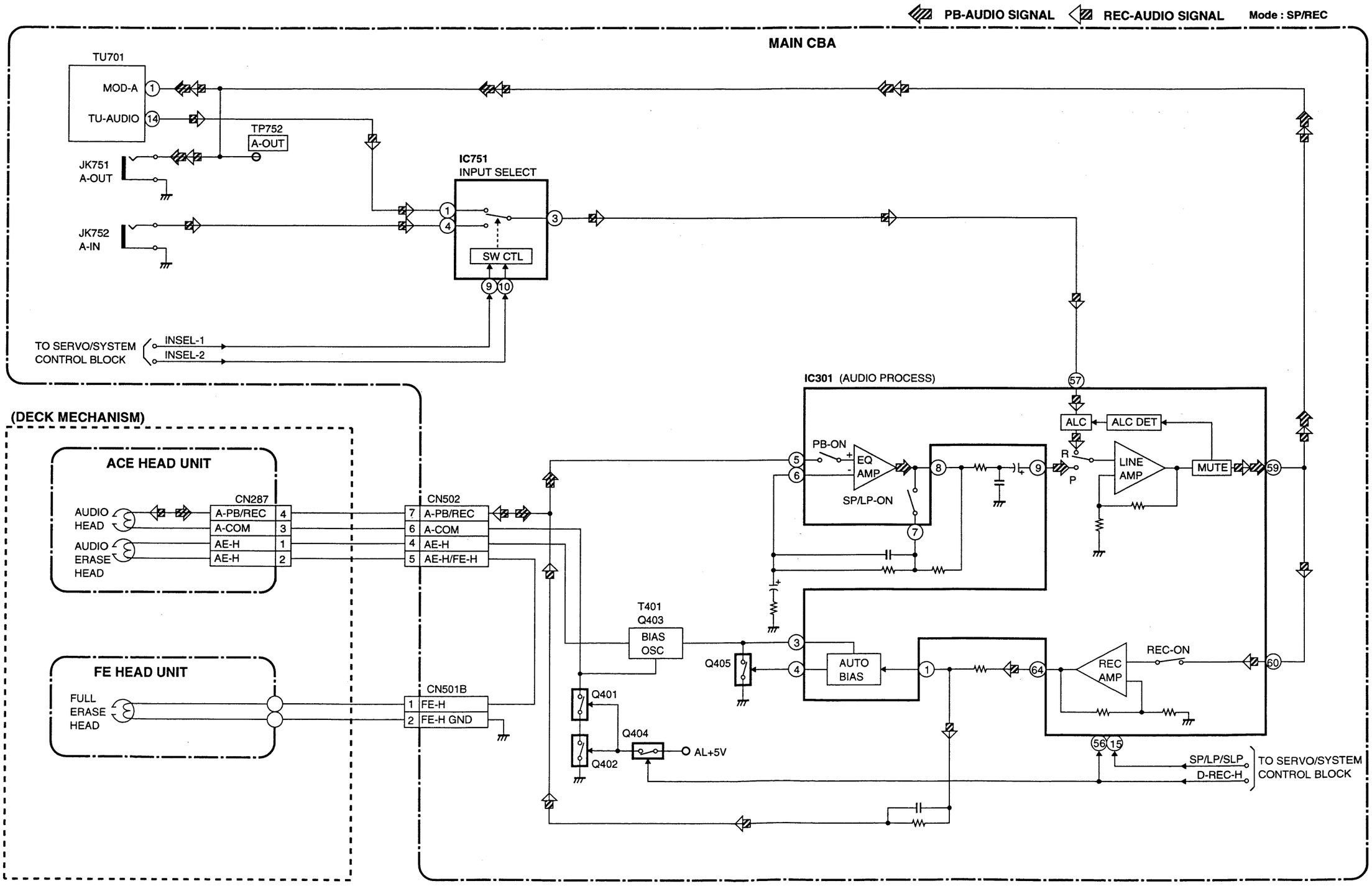
NOTE: The loading motor drive IC is either IC507A (TA7291S) or IC507B (LB1641). These ICS are exchangeable parts.



Video Block Diagram



Audio Block Diagram

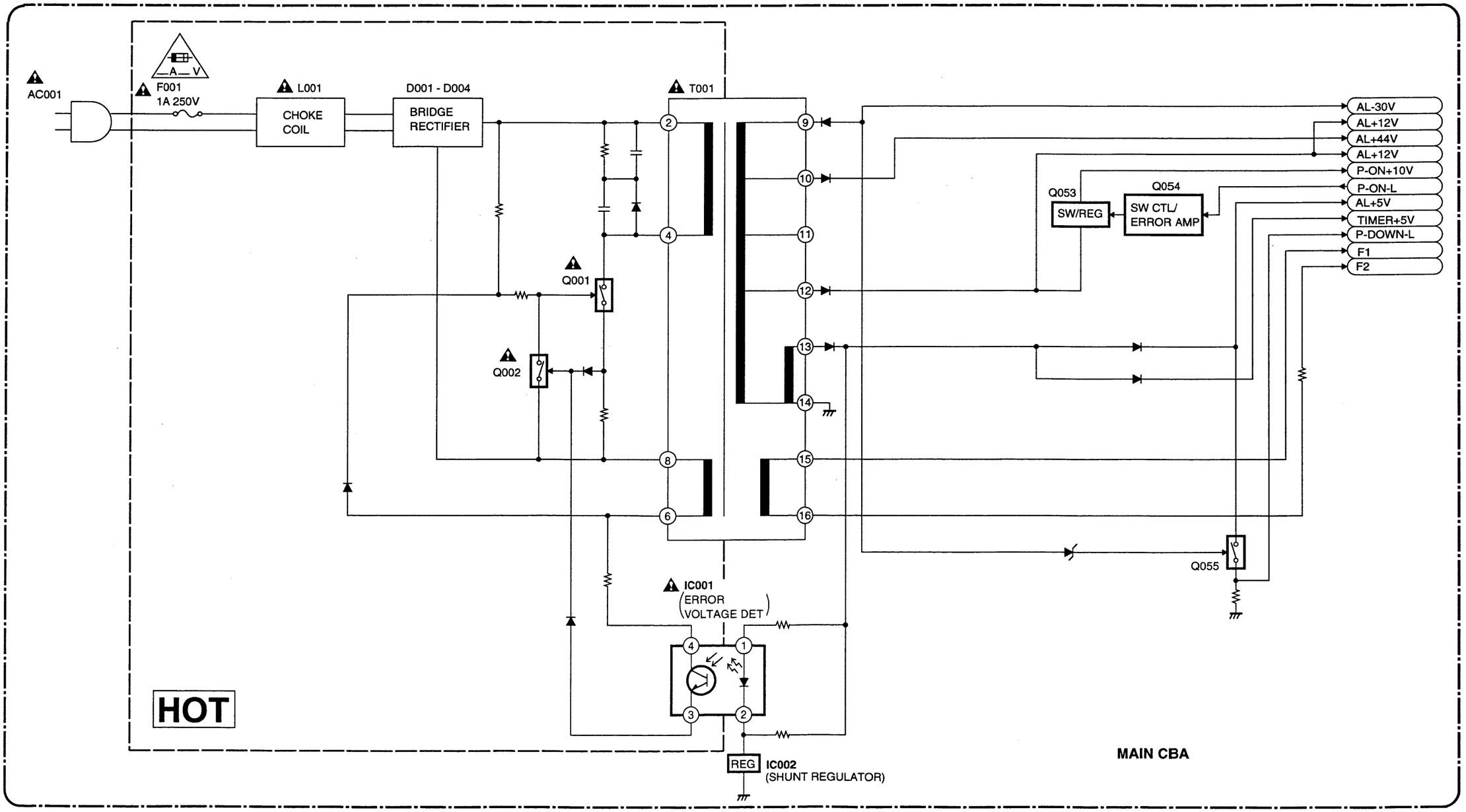


Power Supply Block Diagram

NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES
D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.



SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

Standard Notes

Warning

Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the mark " ⚠ " in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

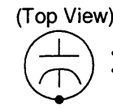
Capacitor Temperature Markings

Mark	Capacity change rate	Standard temperature	Temperature range
(B)	±10%	20℃	-25~+85℃
(F)	+30 -80%	20℃	-25~+85℃
(SR)	±15%	20℃	-25~+85℃
(Z)	+30 -80%	20℃	-10~+70℃

Capacitors and transistors are represented by the following symbols.

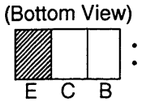
CBA Symbols

(Top View) (Bottom View)



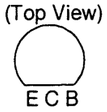
: Electrolytic Capacitor

(Bottom View)



: Transistor or Digital Transistor

(Top View)

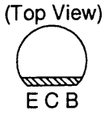


NPN Transistor

(Top View)

PNP Transistor

(Top View)



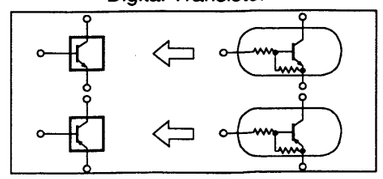
NPN Digital Transistor

(Top View)

PNP Digital Transistor

Schematic Diagram Symbols

Digital Transistor

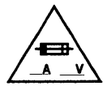


Note:

1. Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
2. All resistance values are indicated in ohms ($K=10^3$, $M=10^6$).
3. Resistor wattages are 1/4W or 1/6W unless otherwise specified.
4. All capacitance values are indicated in μF ($P=10^{-6}\mu F$).
5. All voltages are DC voltages unless otherwise specified.

LIST OF CAUTION, NOTES, AND SYMBOLS USED IN THE SCHEMATIC DIAGRAMS ON THE FOLLOWING PAGES:

1. **CAUTION:**



FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.

2. **CAUTION:** This symbol means fast operating fuse.
Ce symbole représente un fusible à fusion rapide.

Fixed Voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F001) is blown, first check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

3. **Note:**

(1) Do not use the part number shown on the drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since the drawings were prepared.

(2) To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

4. Wire Connectors

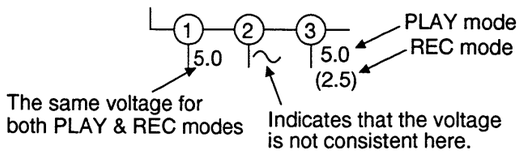
(1) Prefix symbol "CN" means "connector." (Can disconnect and reconnect)

(2) Prefix symbol "CL" means "wire-solder holes of the PCB." (Wire is soldered directly.)

5. Note: Mark "•" is a leadless (chip) component.

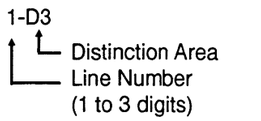
6. Mode: SP/REC

7. Voltage indications for PLAY and REC modes on the schematics are as shown below:



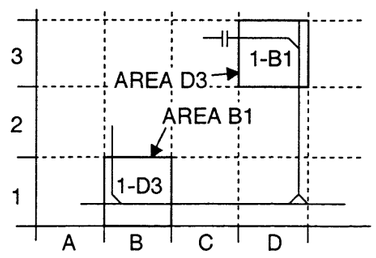
Unit: Volts

8. How to read converged lines



Examples:

1. "1-D3" means that line number "1" goes to area "D3".
2. "1-B1" means that line number "1" goes to area "B1".



9. Test Point Information

: Indicates a test point with a jumper wire across a hole in the PCB.
: Used to indicate a test point with a component lead on foil side.
: Used to indicate a test point with no test pin.
: Used to indicate a test point with a test pin.

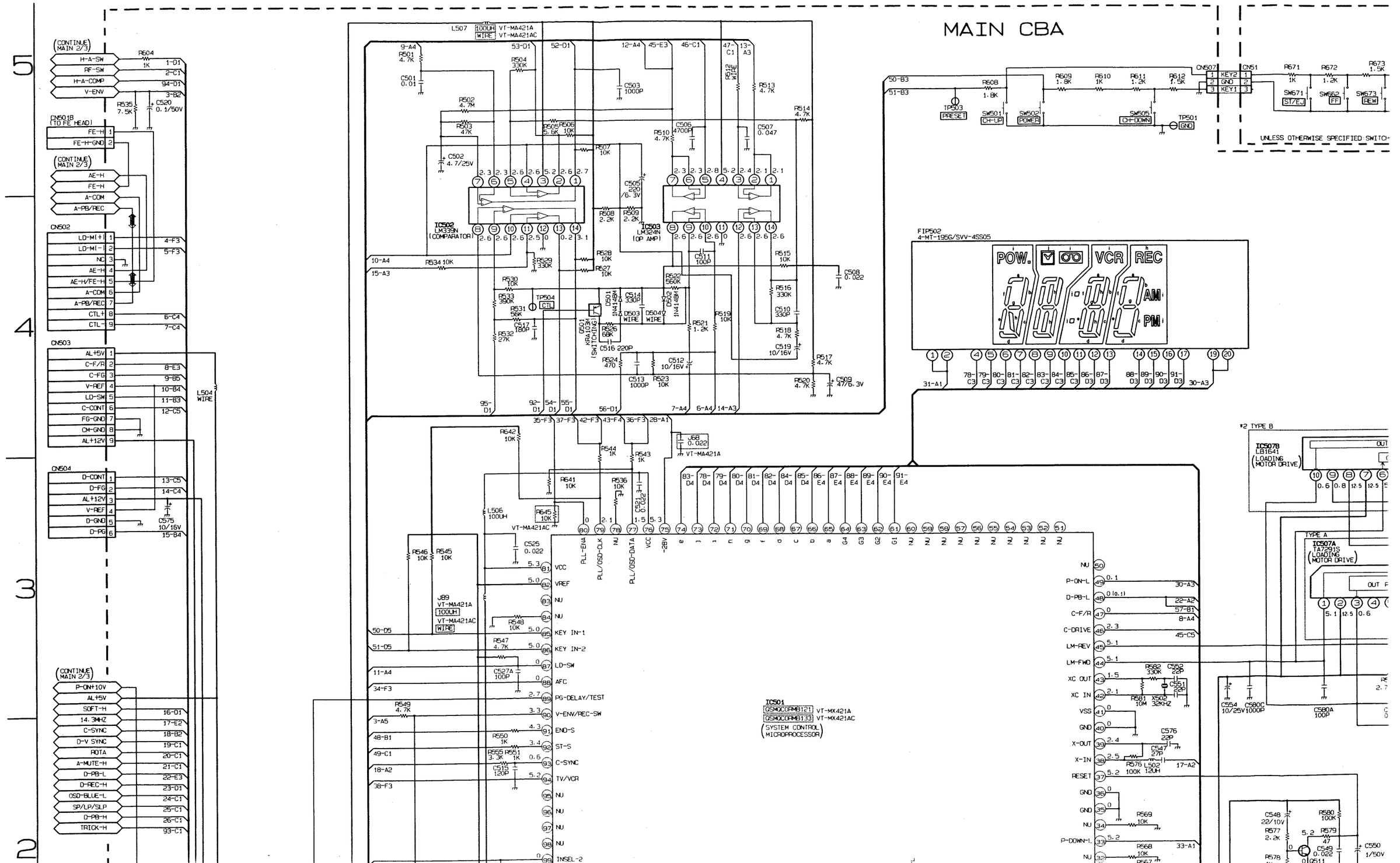
Main 1/3 Schematic Diagram

＊1 Note: The remote receiver is either type C or type D.
These two types are exchangeable and can be equally used whichever the model is.
The difference between type C and type D is shown in the table below.

	RS501	J61	J62	J63	J64
Type C	PIC-21042LU	Not Used	WIRE	Not Used	WIRE
Type D	NJL61V367S NJL51V367	WIRE	Not Used	WIRE	Not Used

＊2 Note: The loading motor drive IC is either type A or type B.
These two types are exchangeable and can be equally used whichever the model is. The difference between type A and type B is shown in the table below.

	IC507A	IC507B	C555
Type A	TA7291S	Not Used	Not Used
Type B	Not Used	LB1641	0.01uF

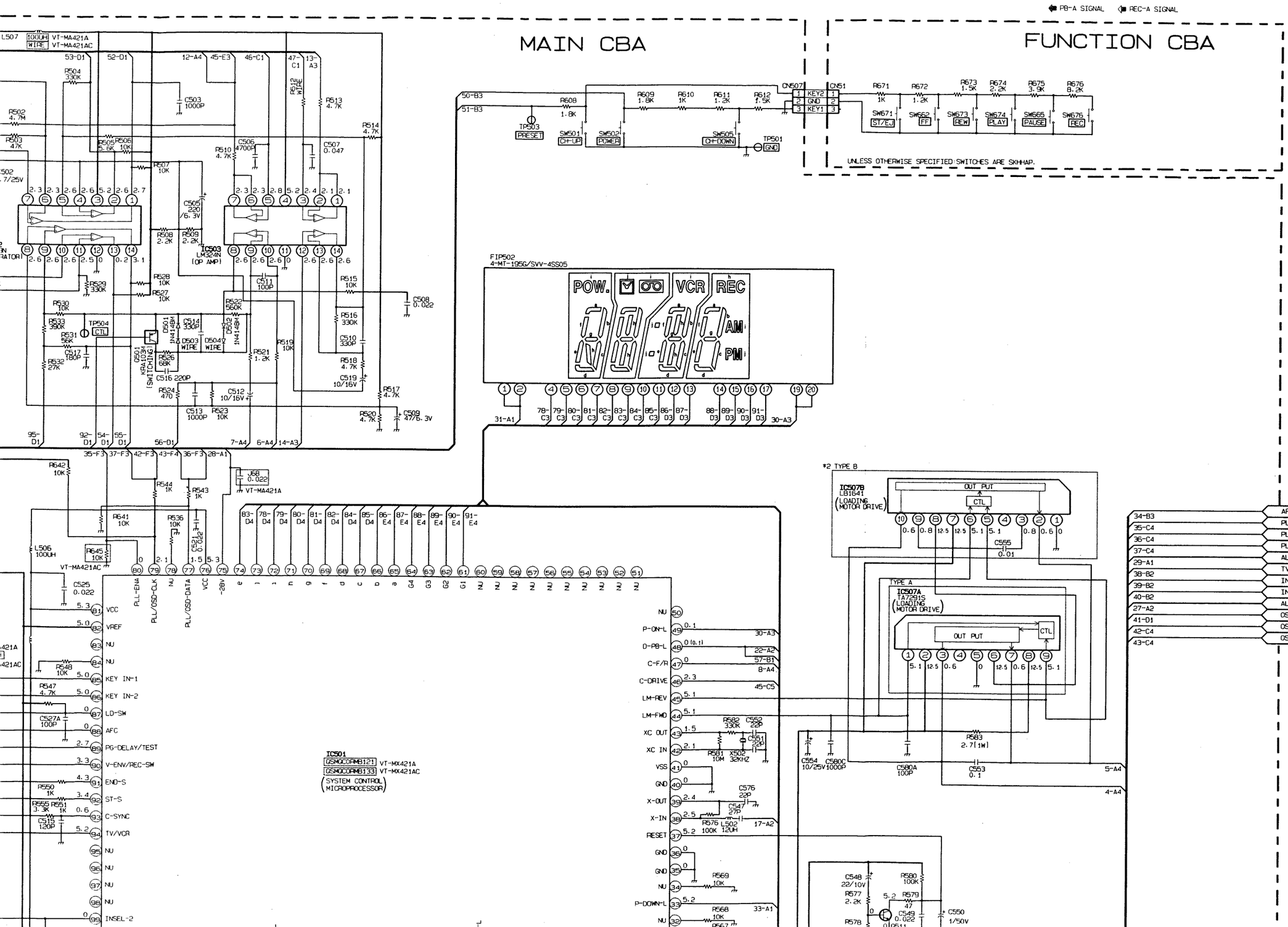


…pe C or type D.
…nd can be equally used whichever the model is.
…pe D is shown in the table below.

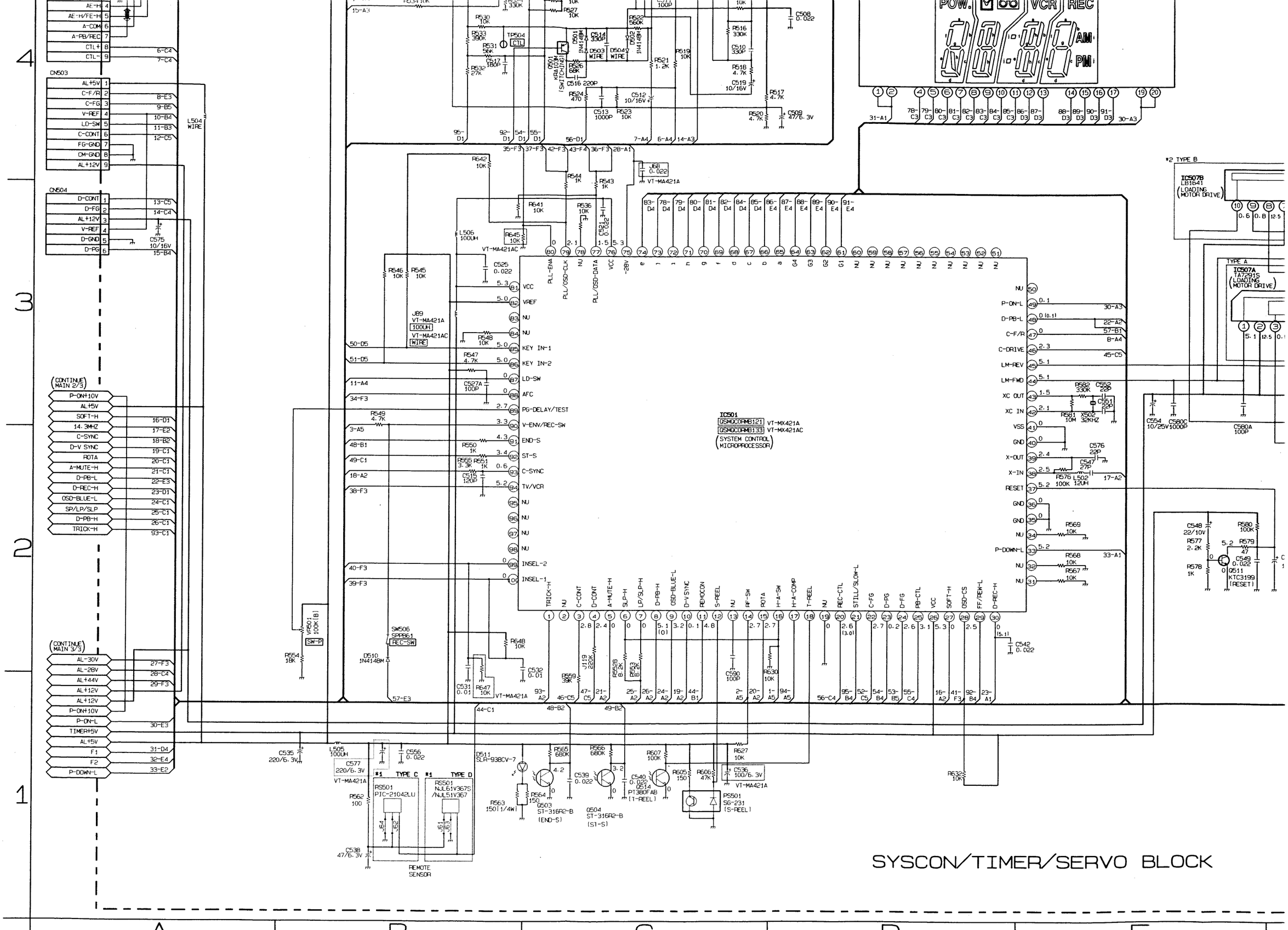
J61	J62	J63	J64
…ot Used	WIRE	Not Used	WIRE
WIRE	Not Used	WIRE	Not Used

***2 Note: The loading motor drive IC is either type A or type B. These two types are exchangeable and can be equally used whichever the model is. The difference between type A and type B is shown in the table below.**

	IC507A	IC507B	C555
Type A	TA7291S	Not Used	Not Used
Type B	Not Used	LB1641	0.01uF



SYSCON/TIMER/SERVO BLOCK



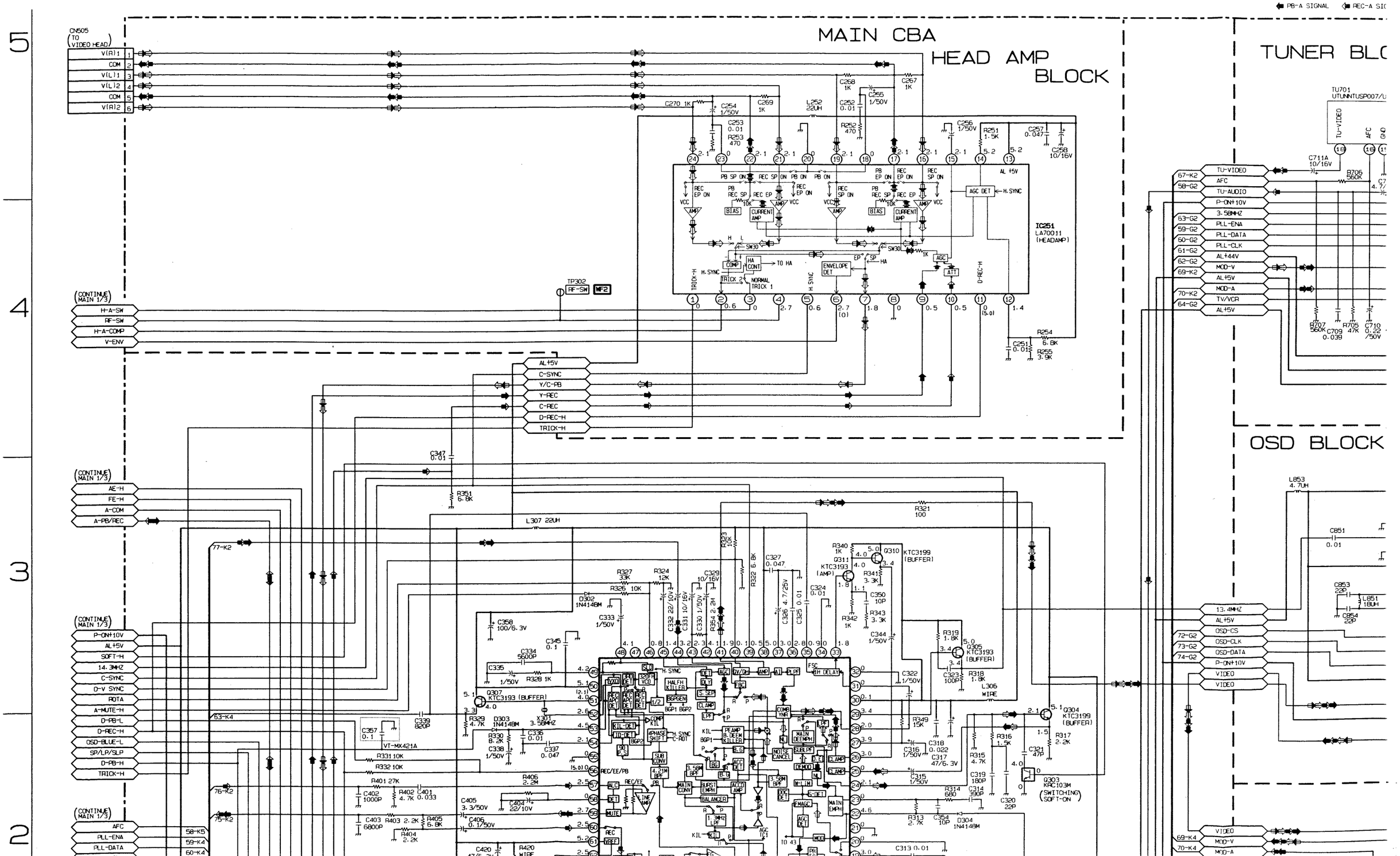
SYSCON/TIMER/SERVO BLOCK

IC501
GSMQC0RMB121 VT-MX421A
GSMQC0RMB133 VT-MX421AC
(SYSTEM CONTROL MICROPROCESSOR)

*1 TYPE D
*2 TYPE B
TYPE A
IC5078 LB1641 (LOADING MOTOR DRIVE)
IC507A TA7291S (LOADING MOTOR DRIVE)

(CONTINUE MAIN 2/3)
AFC
PLL-ENA
PLL-DATA
PLL-CLK
AL+44V
TV/VCR
INSEL-1
INSEL-2
AL-30V
OSD-CS
OSD-CLK
OSD-DATA

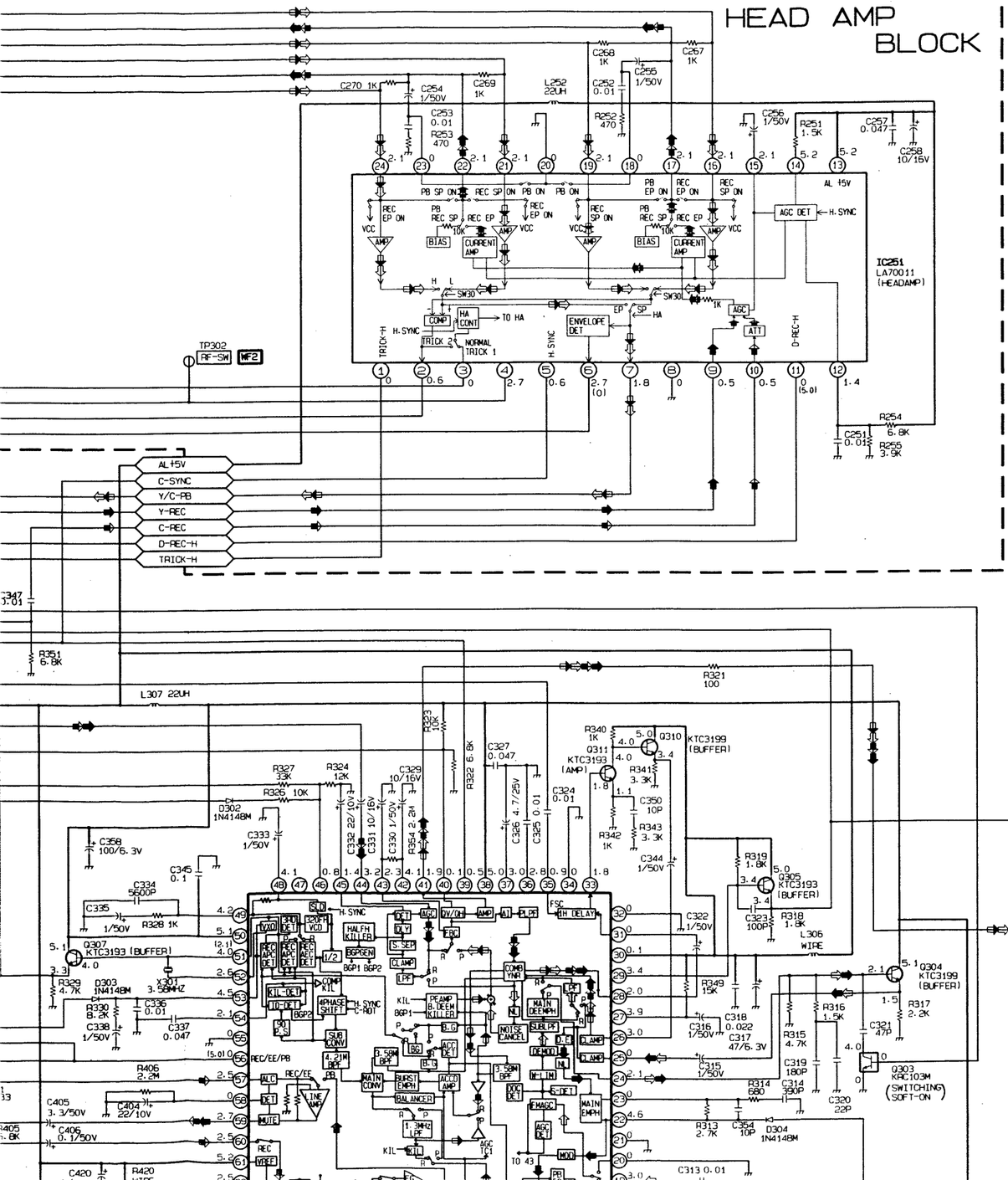
Main 2/3 Schematic Diagram



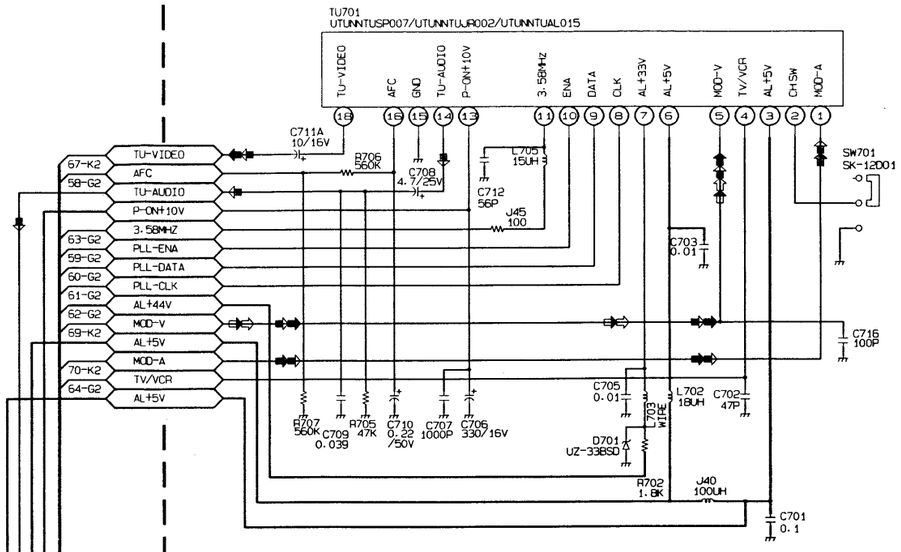
PB-A SIGNAL REC-A SIGNAL PB-Y SIGNAL PB-C SIGNAL REC-Y SIGNAL REC-C SIGNAL

MAIN CBA

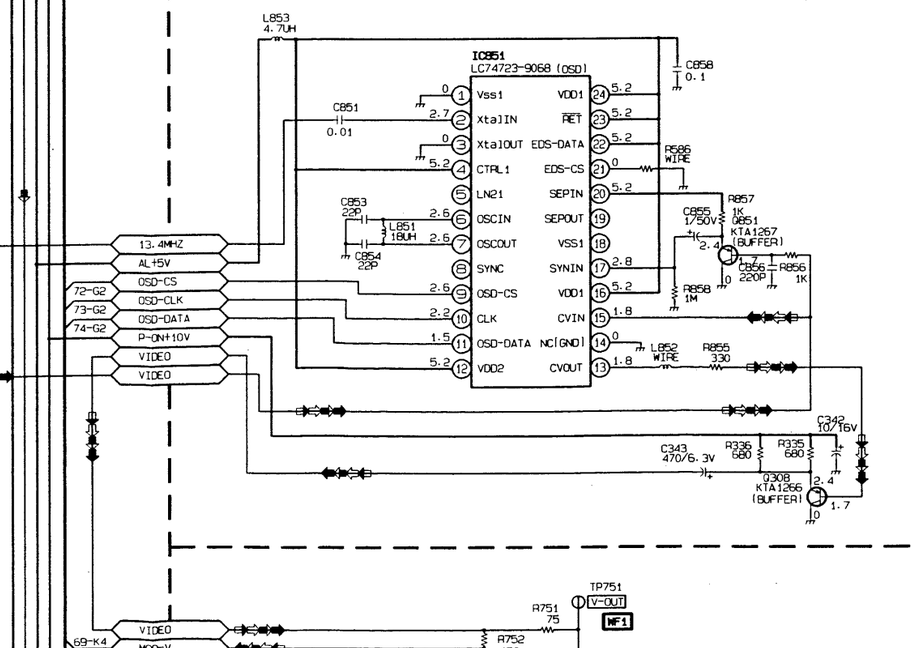
HEAD AMP BLOCK

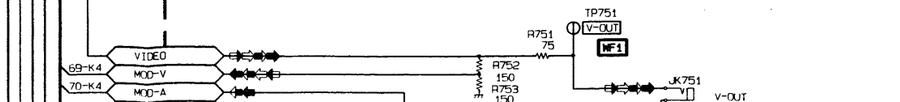


TUNER BLOCK



OSD BLOCK



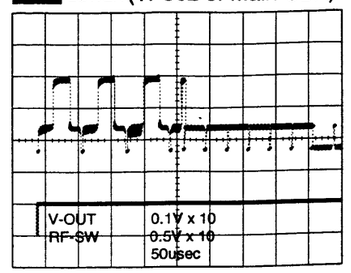


WAVEFORMS

WF 1 (TP751 of Main CBA)

WF1 UPPER (TP751 of Main CBA)

WF2 LOWER (TP302 of Main CBA)



VIDEO/AUDIO BLOCK

OSD BLOCK

IC301 LA71020M (VIDEO/AUDIO SIGNAL PROCESS)

IC751 NJU4052BD (INPUT SELECT)

Q303 KRC103M (SWITCHING) (SOFT-ON)

Q304 KTC3199 (BUFFER)

Q305 KTC3193 (BUFFER)

Q307 KTC3193 (BUFFER)

Q310 KTC3199 (BUFFER)

Q311 KTC3193 (AMP)

Q401 2SC3331 (SWITCHING PB-ON)

Q402 2SC3331 (SWITCHING PB-ON)

Q404 KRA103M (SWITCHING D-REC-OFF)

Q405 2SC3331 (SWITCHING)

T401 7L1A4BA

X301 3.58MHZ

D301 1N4148M

D302 1N4148M

D303 1N4148M

D304 1N4148M

L306 WIRE

L307 22UH

L853 4.7UH

TP301 C-PB WF5

TP302 RF-SW WF2

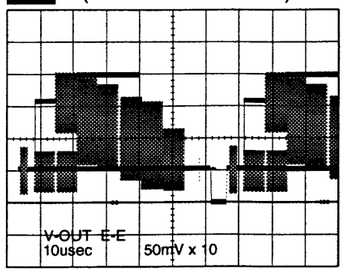
VT-MX421A

VT-MX421AC

(CONTINUE MAIN 1/3)

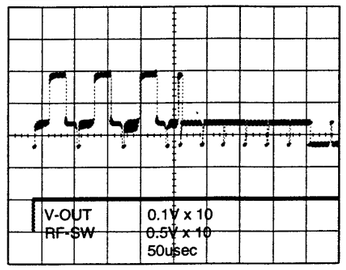
WAVEFORMS

WF 1 (TP751 of Main CBA)



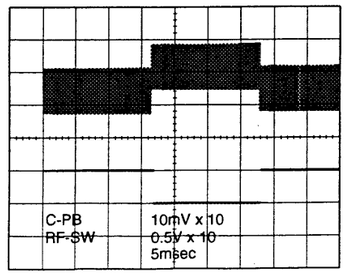
WF1 UPPER (TP751 of Main CBA)

WF2 LOWER (TP302 of Main CBA)



WF5 UPPER (TP301 of Main CBA)

WF2 LOWER (TP302 of Main CBA)



OSD BLOCK

VIDEO/AUDIO BLOCK

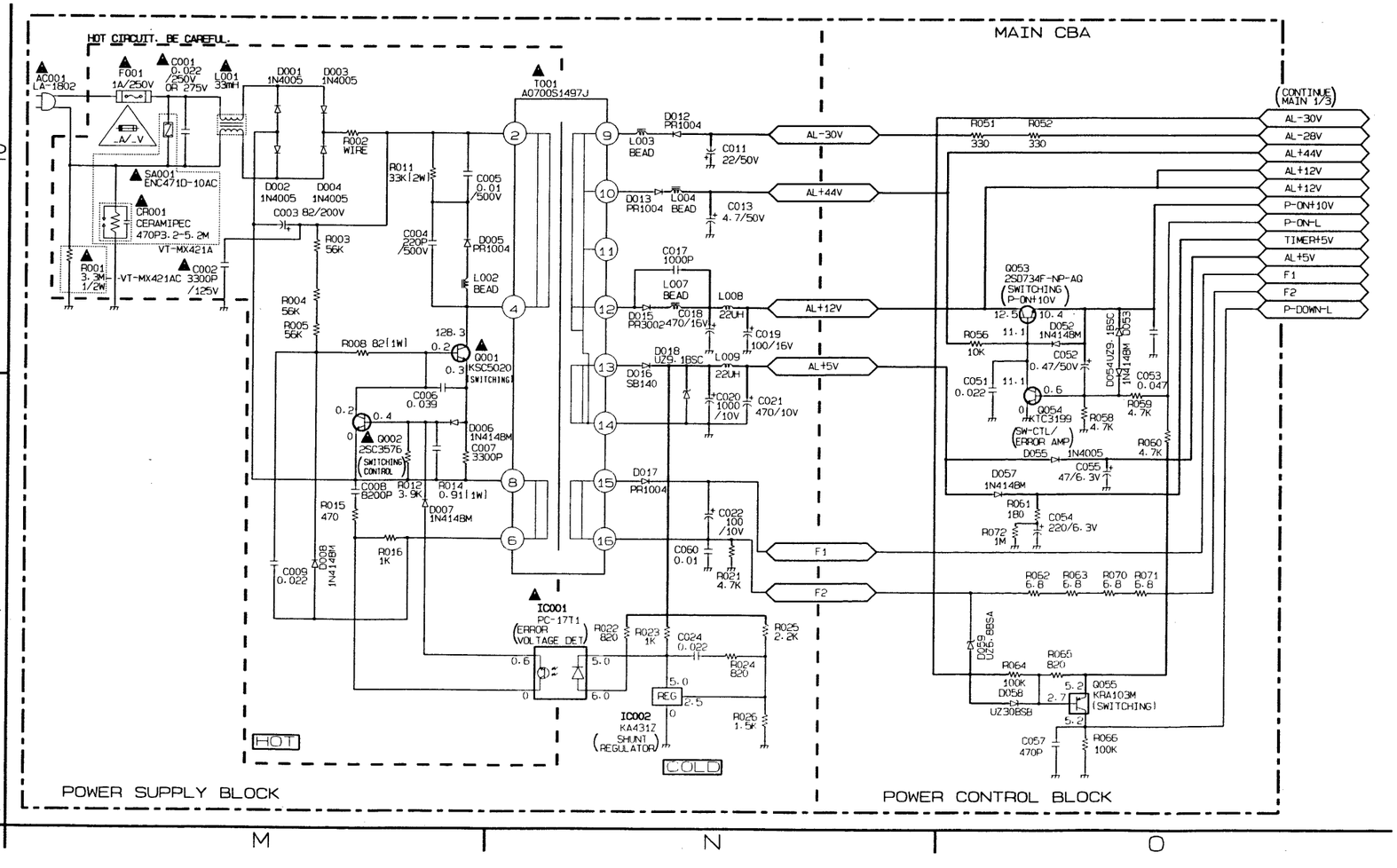
INSEL BLOCK

Main 3/3 Schematic Diagram

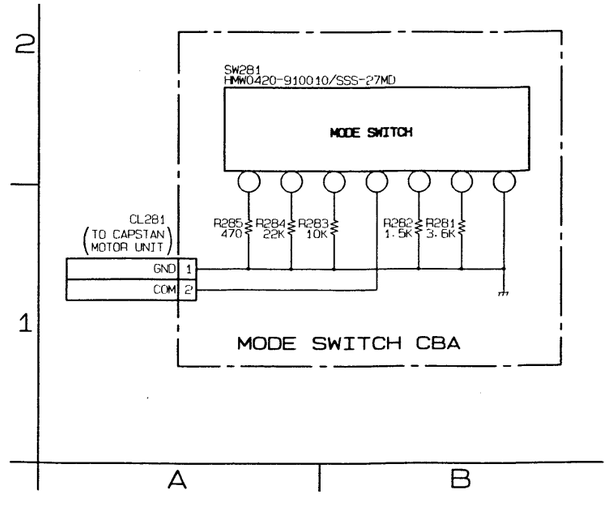
NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

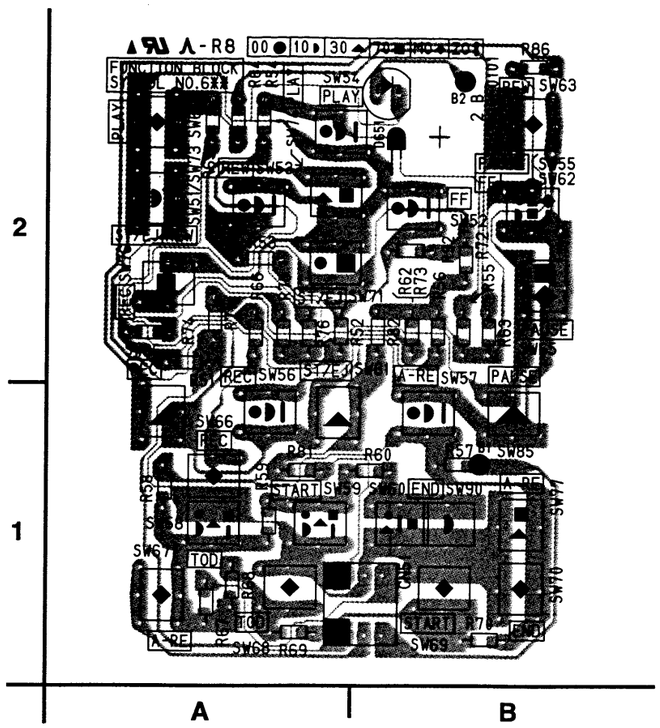
CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit. If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.



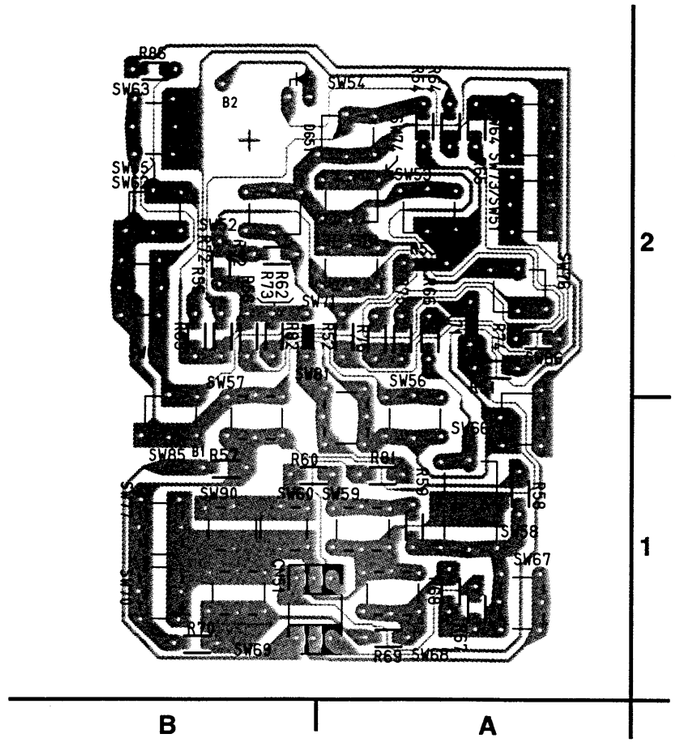
Mode Switch Schematic Diagram



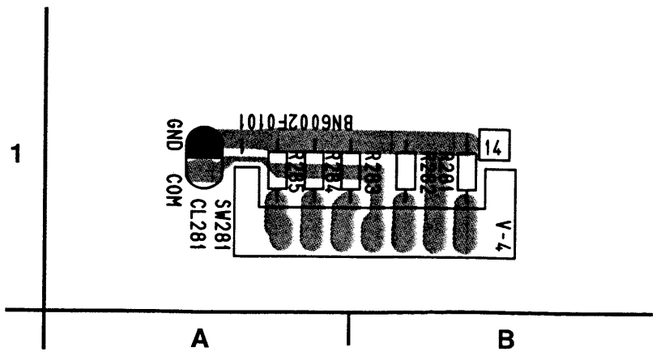
Function CBA Top View



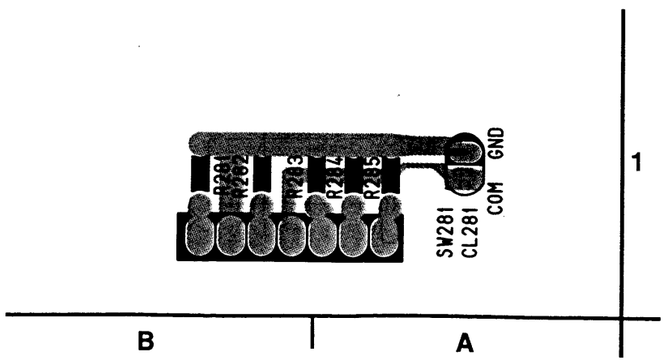
Function CBA Bottom View



Mode Switch CBA Top View



Mode Switch CBA Bottom View



Main CBA Top View

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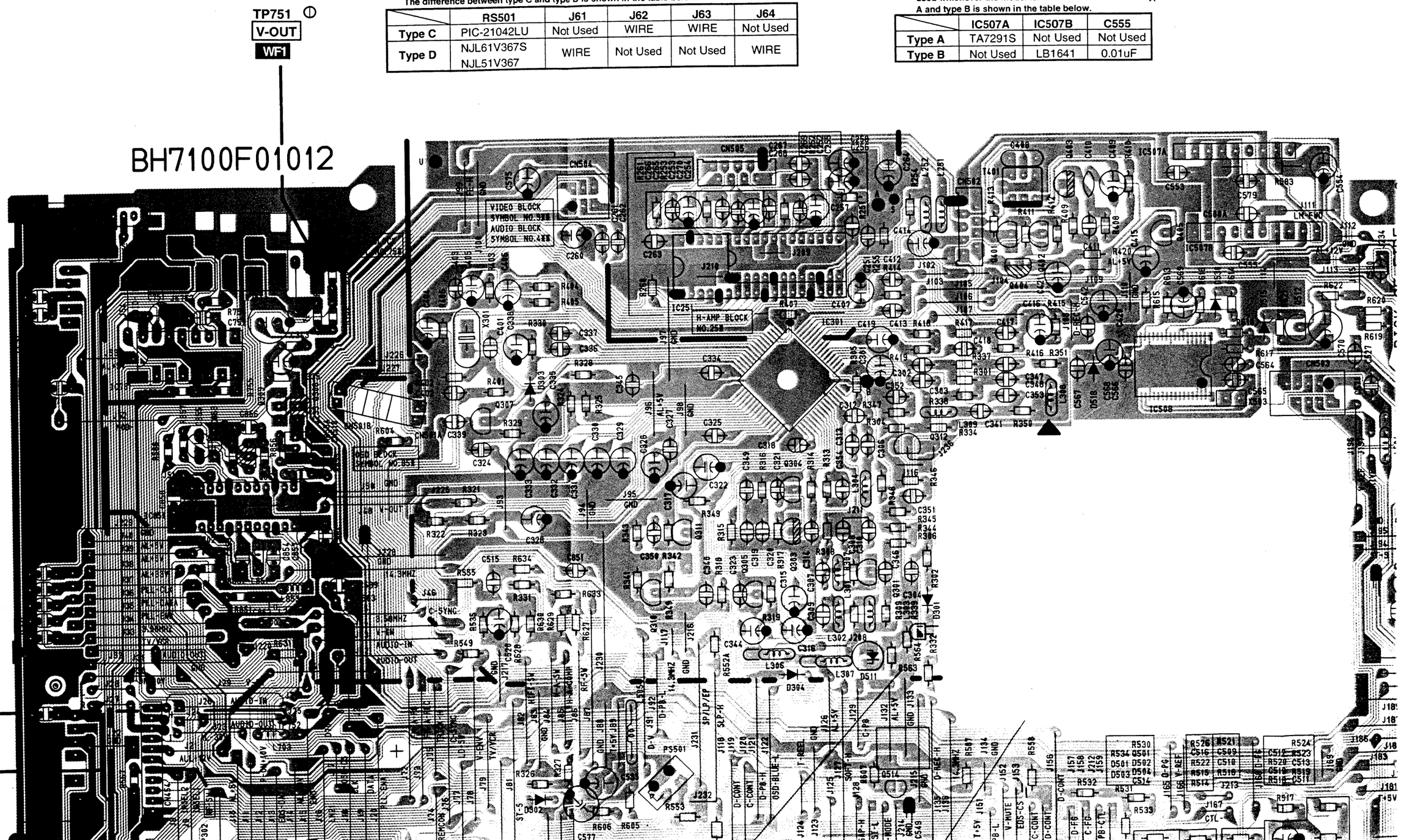
The voltage fo
hot GND as a

＊1 Note: The remote receiver is either type C or type D.
These two types are exchangeable and can be equally used whichever the model is.
The difference between type C and type D is shown in the table below.

	RS501	J61	J62	J63	J64
Type C	PIC-21042LU	Not Used	WIRE	WIRE	Not Used
Type D	NJL61V367S NJL51V367	WIRE	Not Used	Not Used	WIRE

＊2 Note: The loading motor drive IC is either type A or type B.
These two types are exchangeable and can be equally used whichever the model is. The difference between type A and type B is shown in the table below.

	IC507A	IC507B	C555
Type A	TA7291S	Not Used	Not Used
Type B	Not Used	LB1641	0.01uF



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/pe C	PIC-21042LU	Not Used	WIRE	WIRE	Not Used
/pe D	NJL61V367S NJL51V367	WIRE	Not Used	Not Used	WIRE

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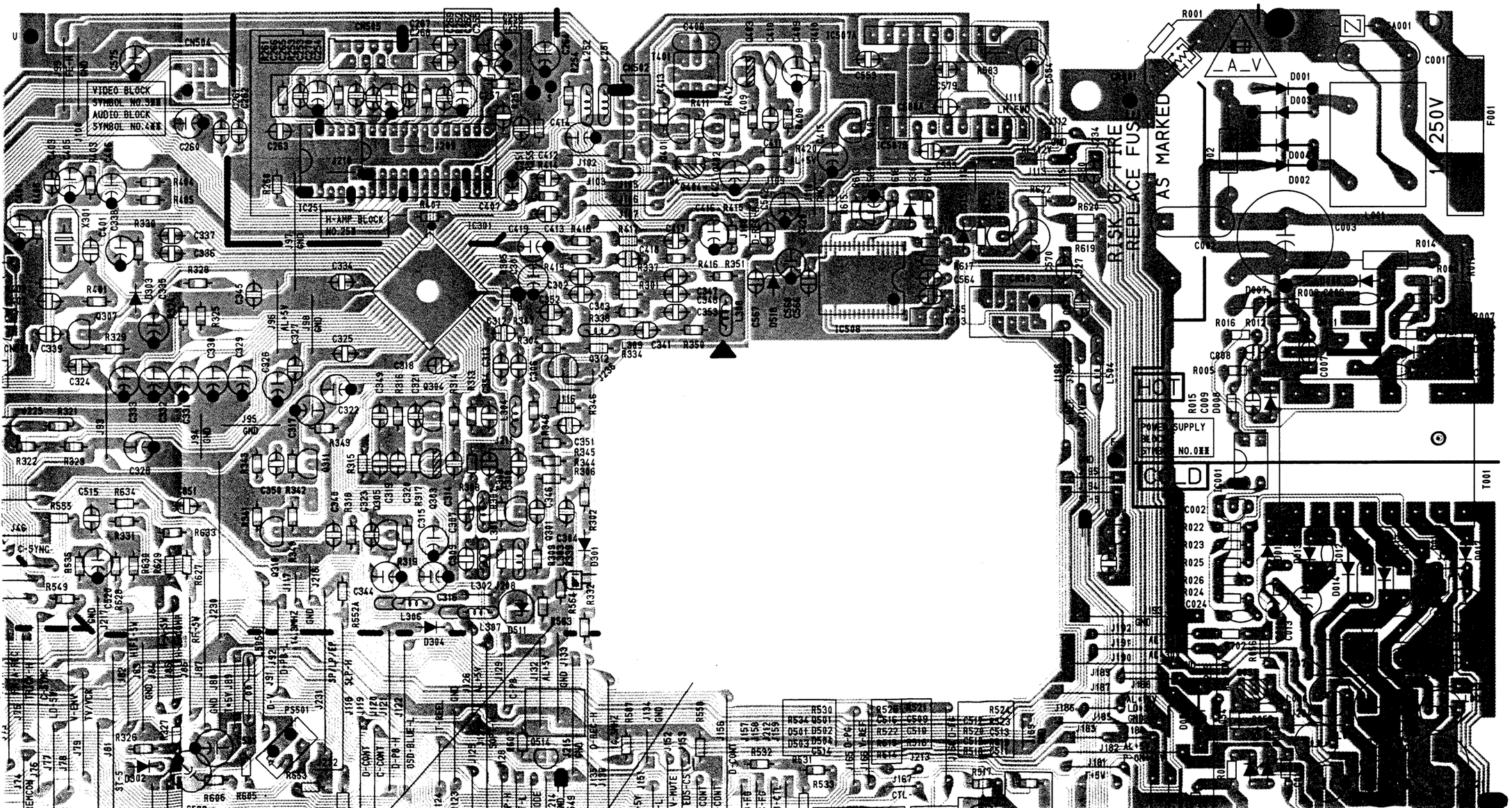
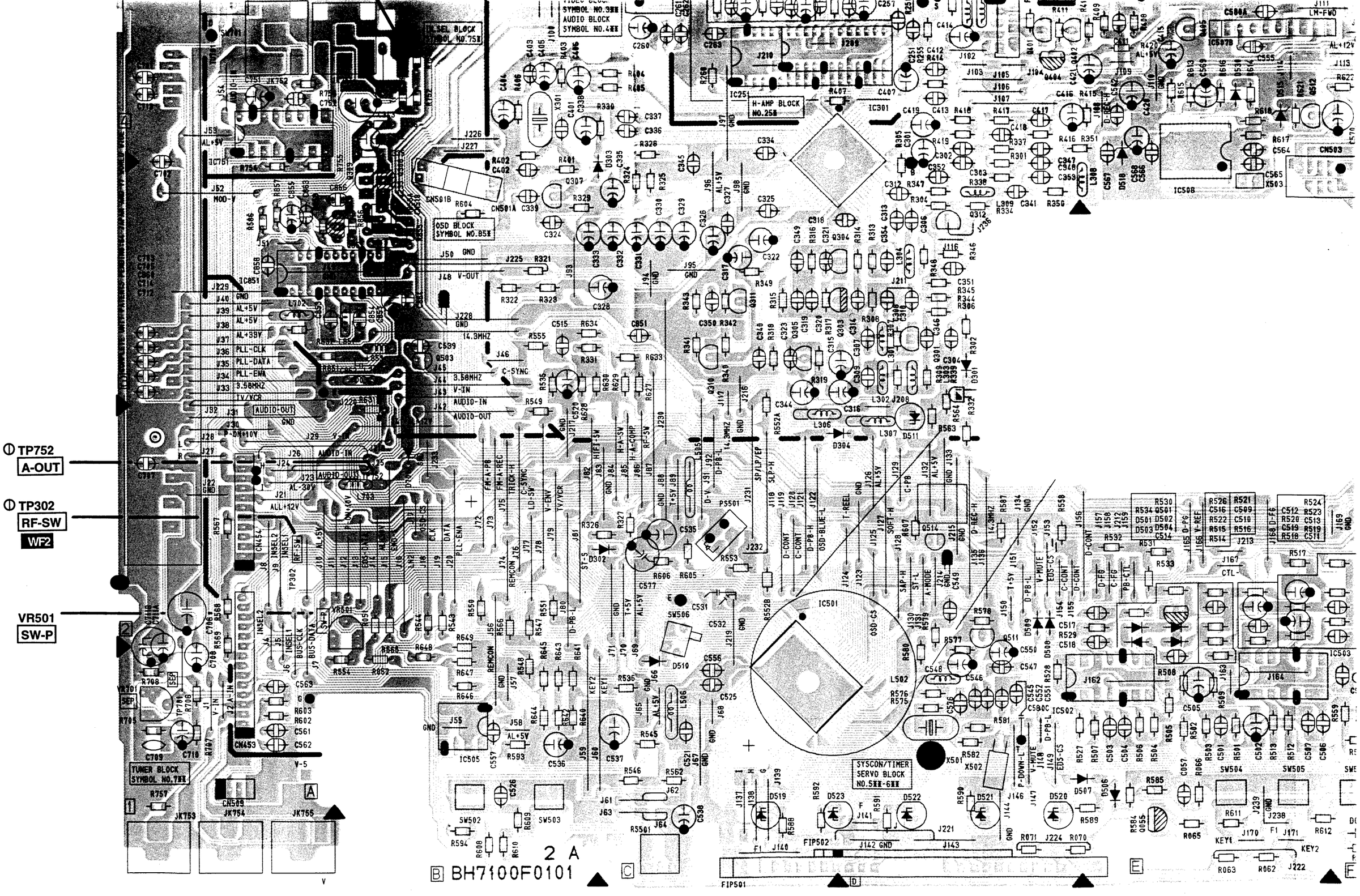
Type A	TA7291S	Not Used	Not Used
Type B	Not Used	LB1641	0.01uF

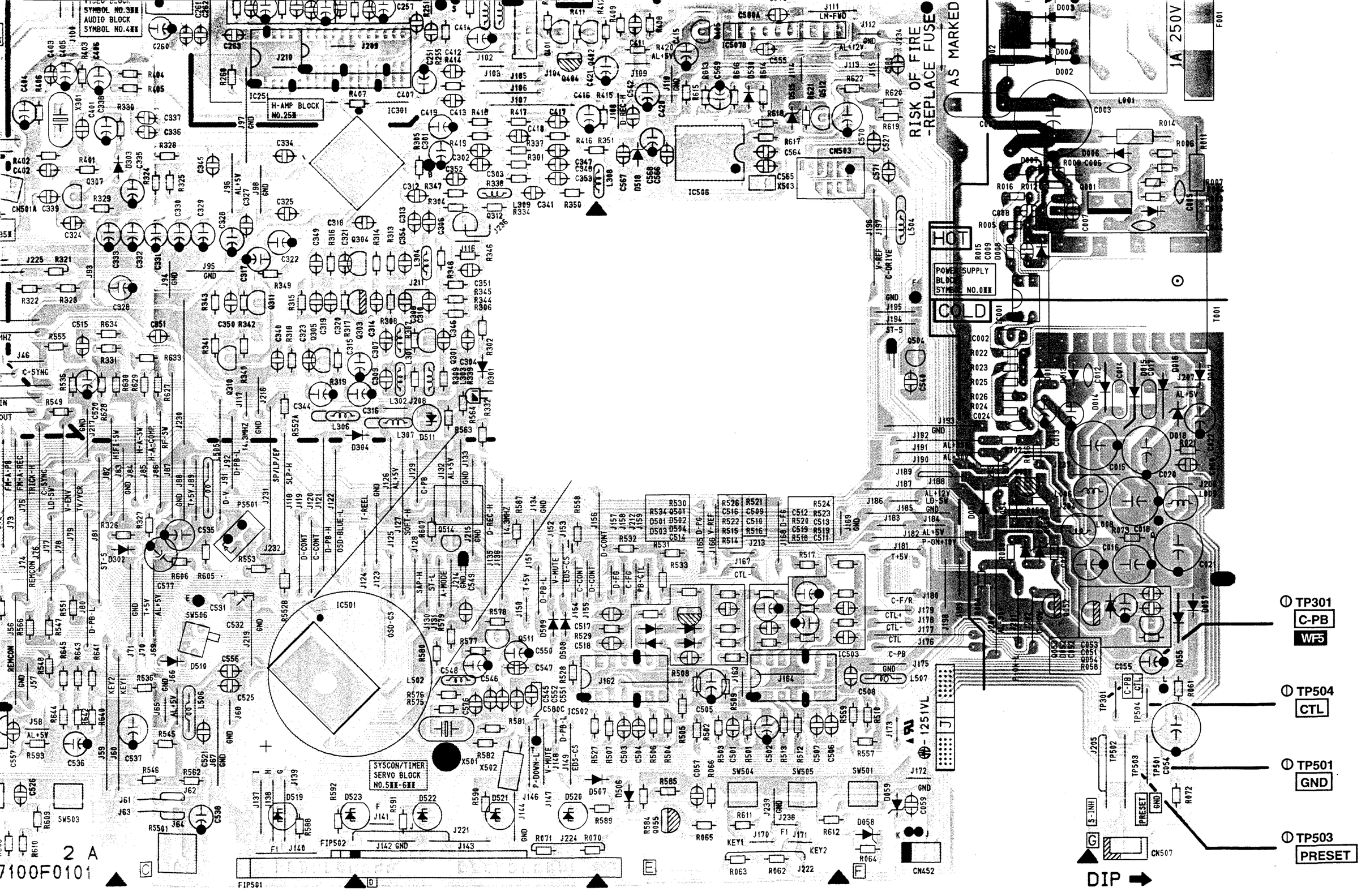


TP752
A-OUT

TP302
RF-SW
WF2

VR501
SW-P




SYMBOL NO.3XX
AUDIO BLOCK
SYMBOL NO.4XX
H-AMP BLOCK
NO.25X
SYSCON/TIMER
SERVO BLOCK
NO.5XX-6XX
POWER SUPPLY
BLOCK
SYMBOL NO.0XX
HOT
COLD
RISK OF FIRE
-REPLACE FUSE
AS MARKED
1A 250V
TP301
C-PB
WF5
TP504
CTL
TP501
GND
TP503
PRESET
DIP
2 A
7100F0101

Main CBA Bottom View

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hot GND as a common te

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These two types are exchangeable and can be equally used whichever the model is.
The difference between type C and type D is shown in the table below.

	RS501	J61	J62	J63	J64
Type C	PIC-21042LU	Not Used	WIRE	WIRE	Not Used
Type D	NJL61V367S NJL51V367	WIRE	Not Used	Not Used	WIRE

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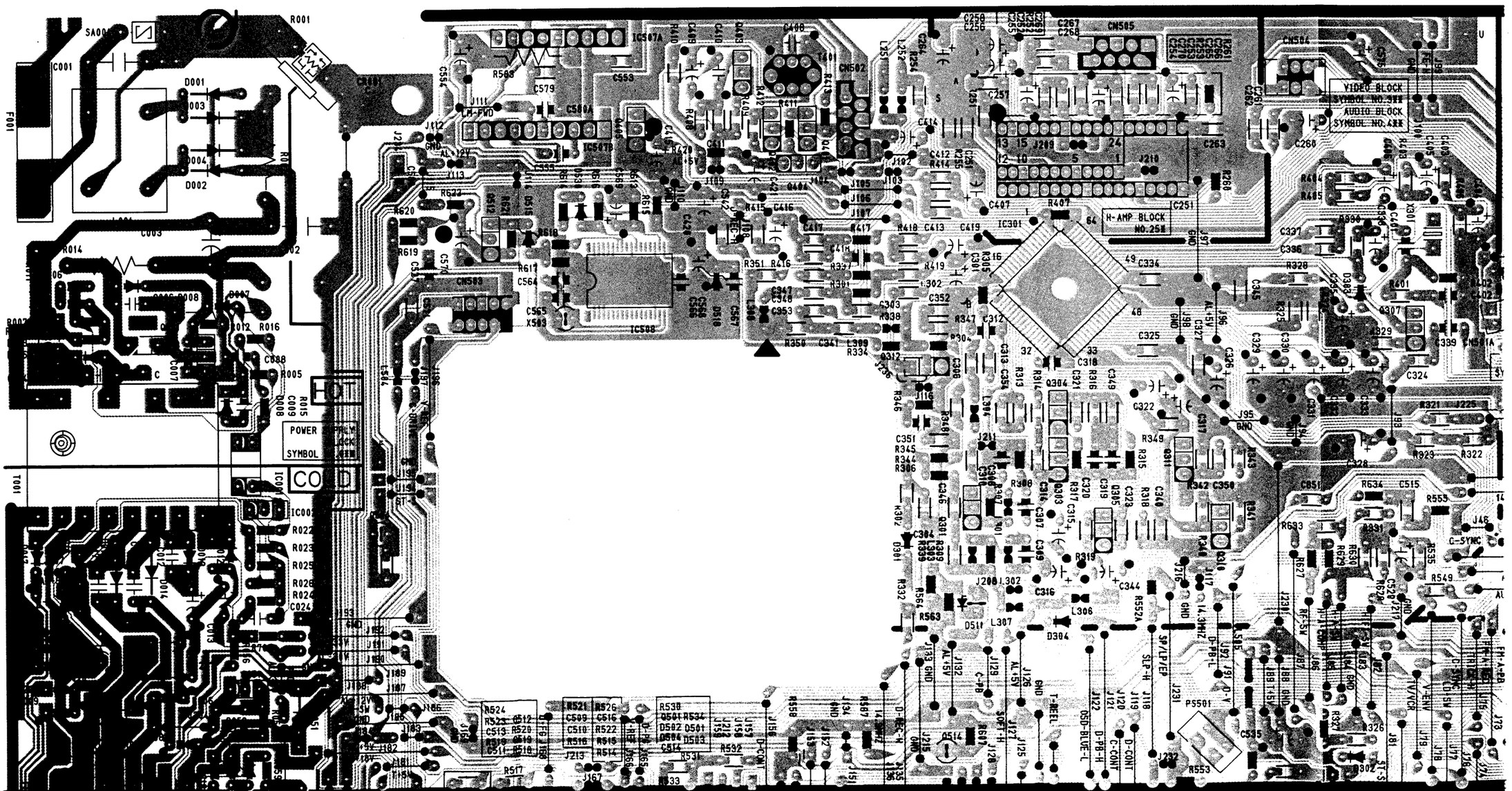
	IC507A	IC507B	C555
Type A	TA7291S	Not Used	Not Used
Type B	Not Used	LB1641	0.01uF



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	PIC-21042LU	Not Used	WIRE	WIRE	Not Used
	NJL61V367S NJL51V367	WIRE	Not Used	Not Used	WIRE

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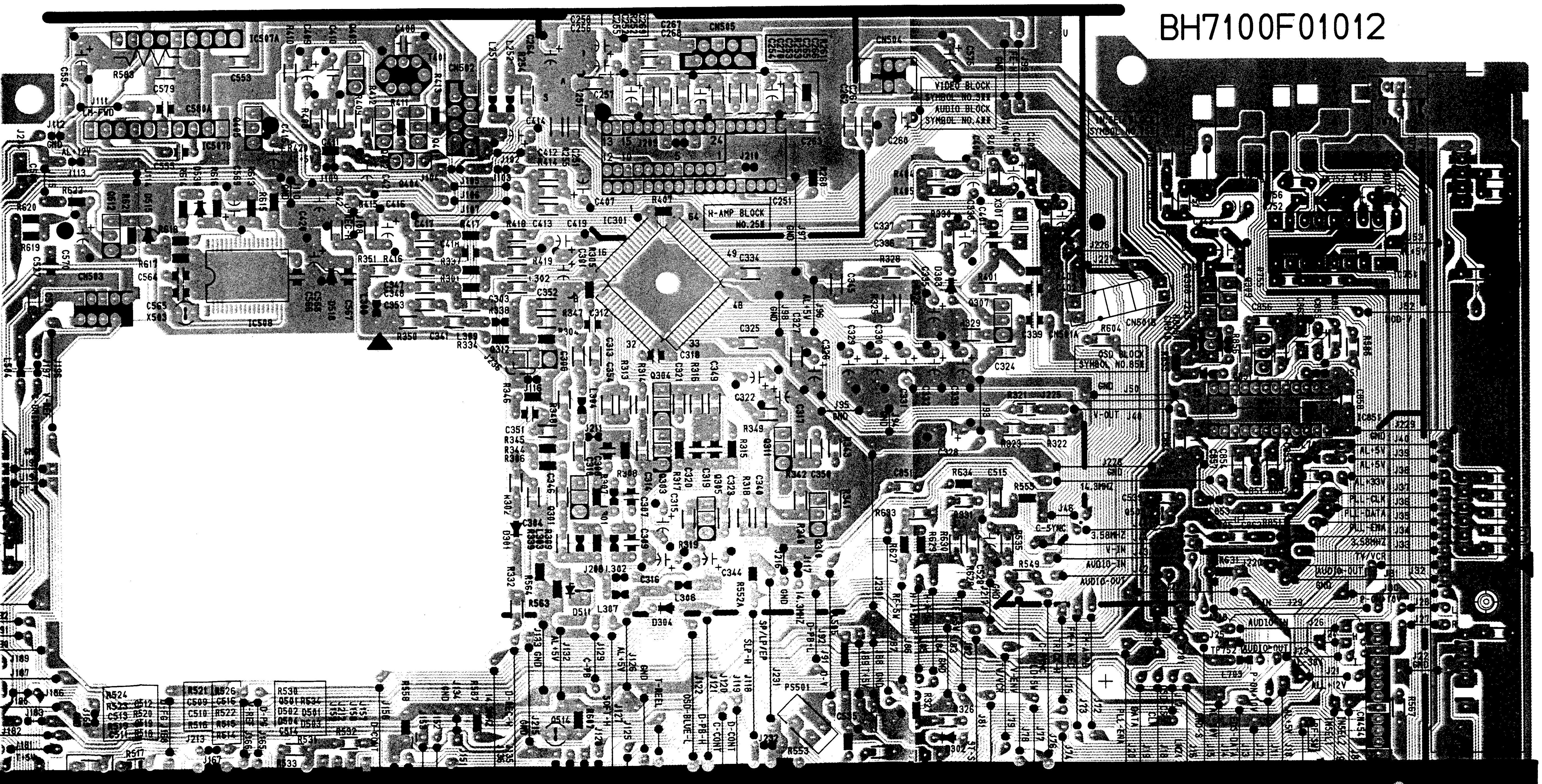
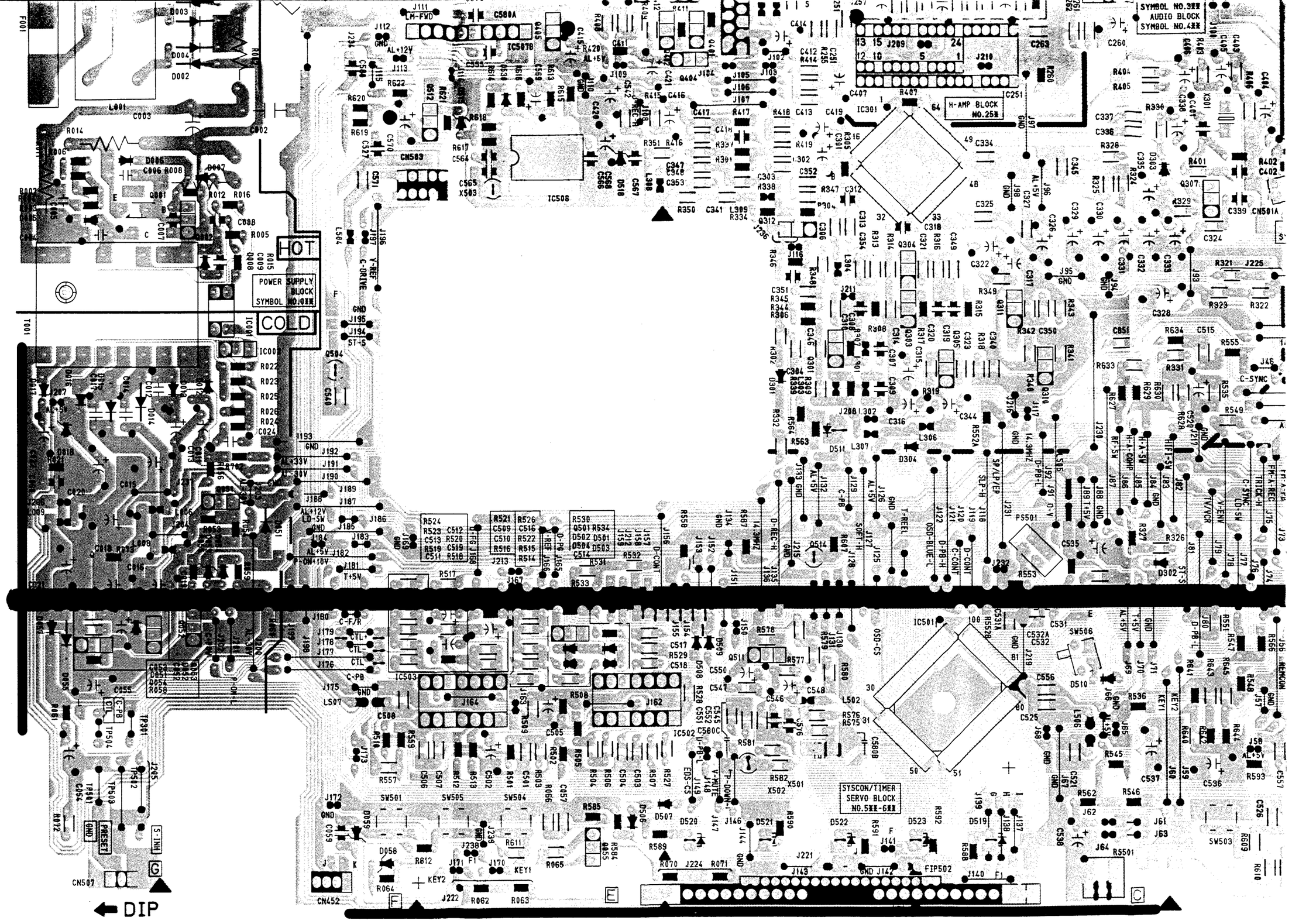
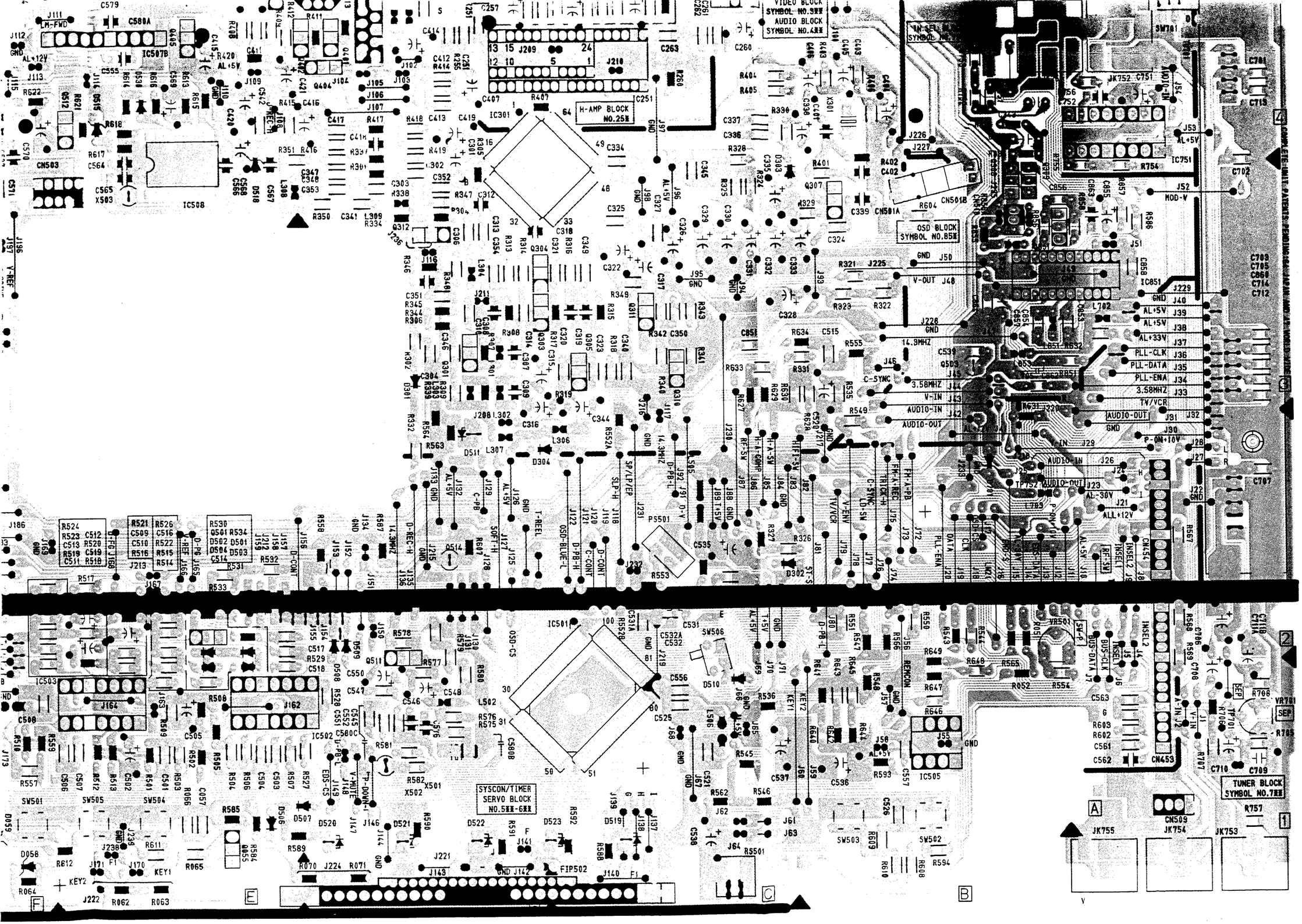
Type A	TA7291S	Not Used	Not Used
Type B	Not Used	LB1641	0.01uF

BH7100F01012




HOT
COLD
POWER SUPPLY BLOCK SYMBOL NO.0##
SYMBOL NO.3## AUDIO BLOCK SYMBOL NO.4##
H-AMP BLOCK NO.25#
SYSCON/TIMER SERVO BLOCK NO.5##-6##
IC508
IC503
IC502
IC501
IC301
IC001
CN507
CN452
CN503
CN501A
P5501
DIP


H-AMP BLOCK NO.25
OSD BLOCK SYMBOL NO.85
SYSCON/TIMER SERVO BLOCK NO.5-6
TUNER BLOCK SYMBOL NO.7
IC501
IC502
IC503
IC505
IC508
IC751
IC851
IC301
PS501
SW501
SW502
SW503
SW504
SW505
SW506
VR501
X501
X502
X503
CN503
CN501A
CN501B
CN453
CN454
CN509
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JK755
JK754
JK753
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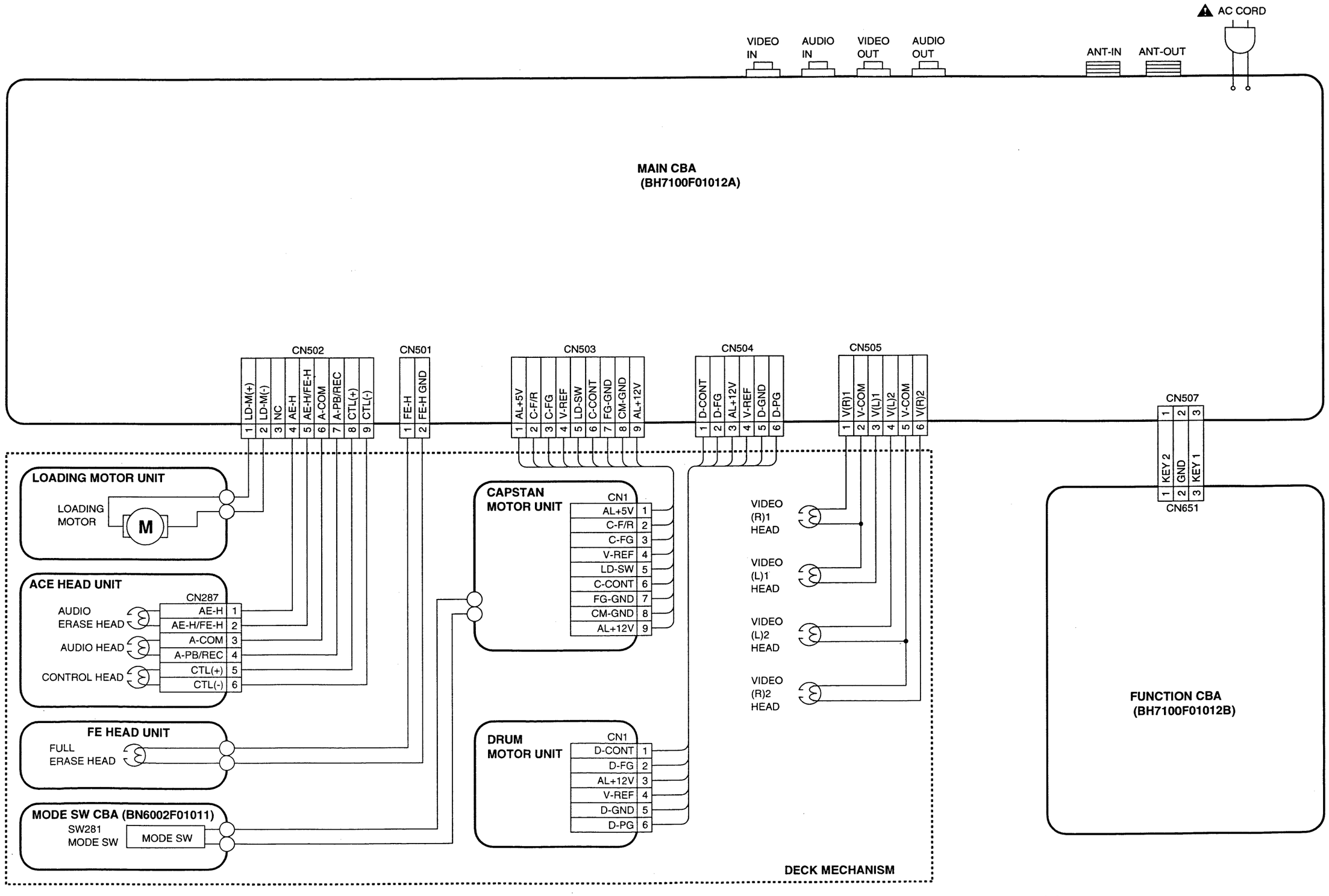
J225

WIRING DIAGRAM



SYSTEM CONTROL TIMING CHARTS

Mode SW : LD-SW

LD-SW Position detection A/D Input voltage Limit (Calculated voltage)	Symbol	
3.76V~4.50V (4.12V)	EJ	Eject
4.51V~5.00V (5.00V)	CL	REW Reel
0.00V~0.25V (0.00V)	SB	Stop (B)
1.06V~1.50V (1.21V)	TL	Brake Cancel
0.66V~1.05V (0.91V)	FB	
1.99V~2.60V (2.17V)	SF	FF / REW
1.51V~1.98V (1.80V)	AU	Stop (A)
3.20V~3.75V (3.40V)	AL	Play / REC (FS Pause 2 Head Still)
0.26V~0.65V (0.44V)	SS	4 Head Still / Slow
4.51V~5.00V (5.00V)	GC	Capstan Reversal
2.61V~3.19V (2.97V)	RS	RS (REV Reel)

Note:

EJ → RS : Loading FWD (LM-FWD "H", LM-REV "L")

RS → EJ : Loading REV (LM-FWD "L", LM-REV "H")

Stop (A) = Loading

Stop (B) = Unloading

Note :

Symbol	Loading Status
EJ	Eject
CL	Eject ~ REW Reel
SB	REW Reel ~ Stop(B)
TL	Stop(B) ~ Brake Cancel
FB	Brake Cancel ~ FF / REW
SF	FF / REW ~ Stop(A)
AU	Stop(A) ~ Play / REC
AL	Play / REC ~ Still / Slow
SS	Still / Slow ~ Capstan Reversal
GC	Capstan Reversal ~ RS (REV Reel)
RS	RS (REV Reel)

Still/Slow Control

Frame Advance Timing Chart

1) SP MODE

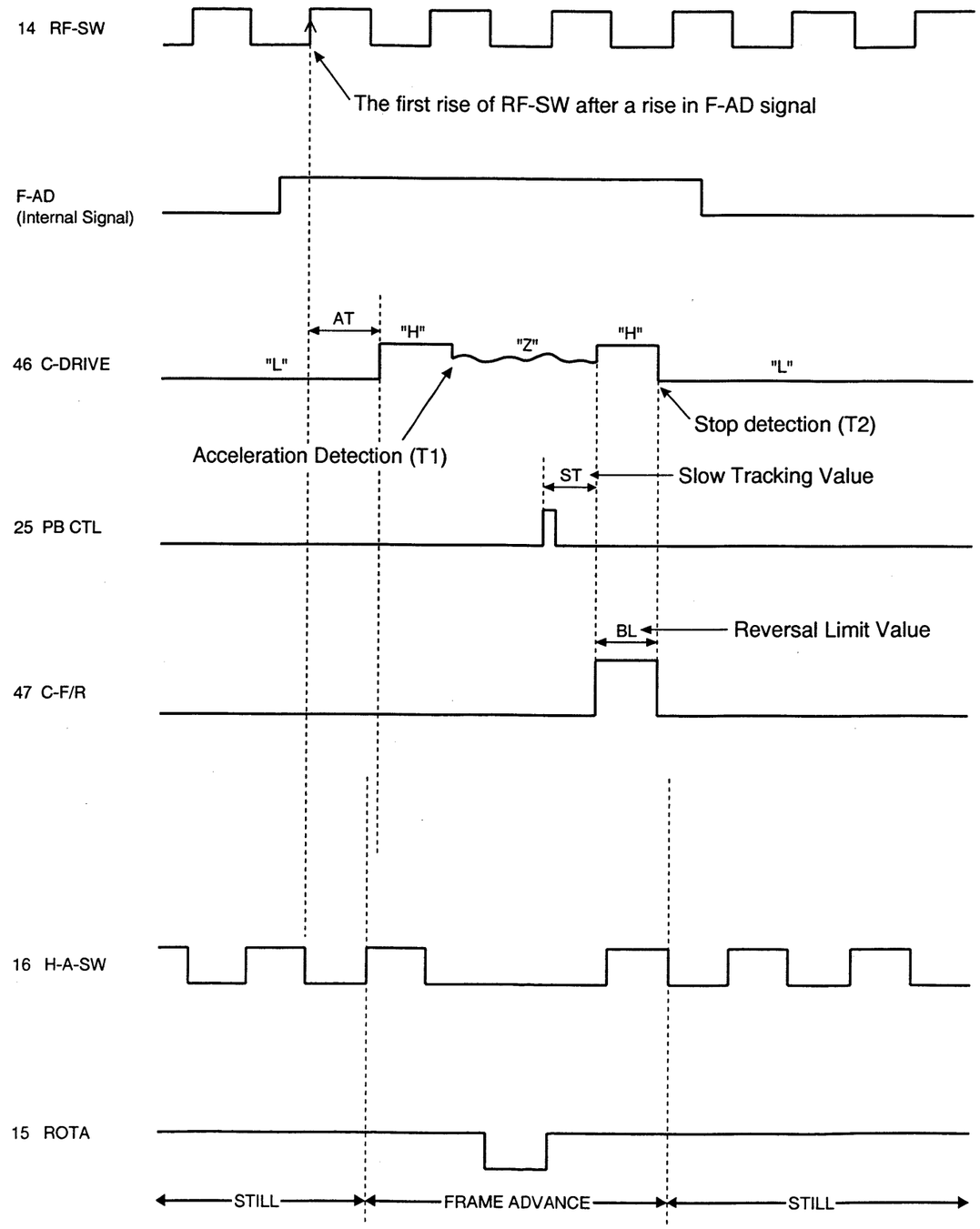


Fig.1

2) LP/SLP MODE

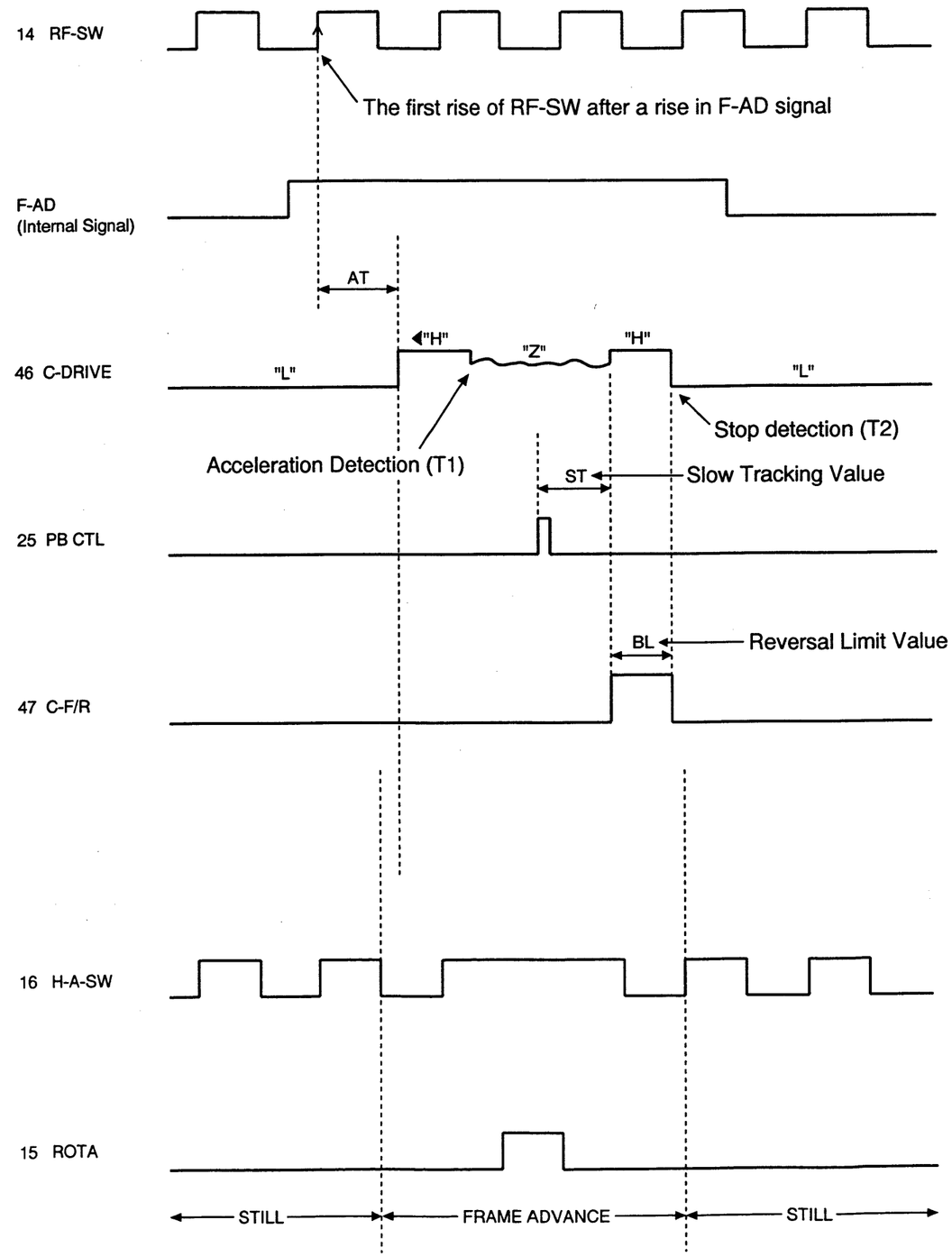


Fig.2

1. EJECT (POWER-OFF) → CASSETTE IN (POWER-ON) → STOP (B) → STOP (A) → PLAY → RS → FS → PLAY → STILL (SLOW) → PLAY → STOP (B)

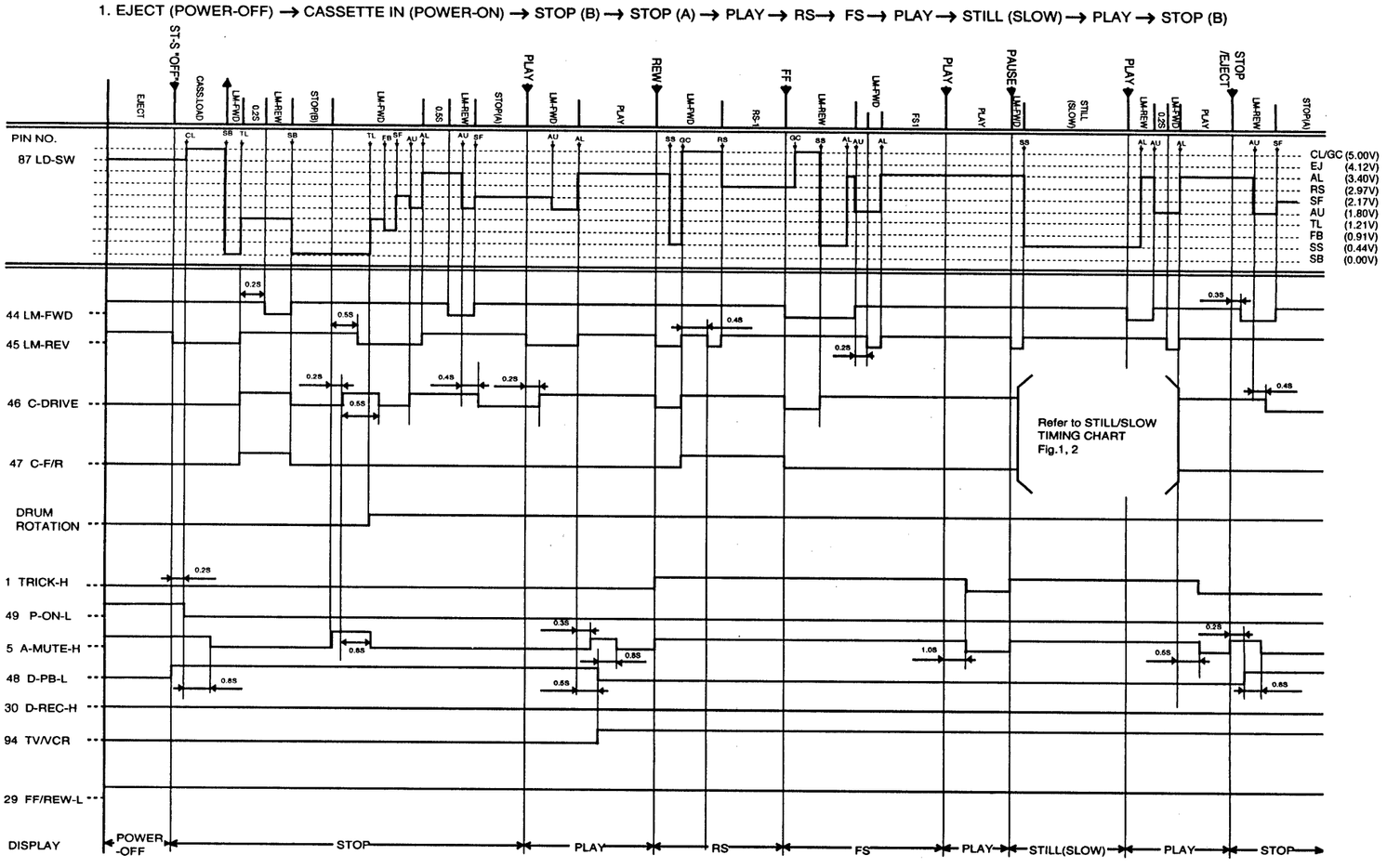


Fig.3

1-11-4

2. STOP (A) → FF → STOP (A) → REW → STOP (A) → REC → PAUSE → PAUSE or REC → STOP (A) → EJECT

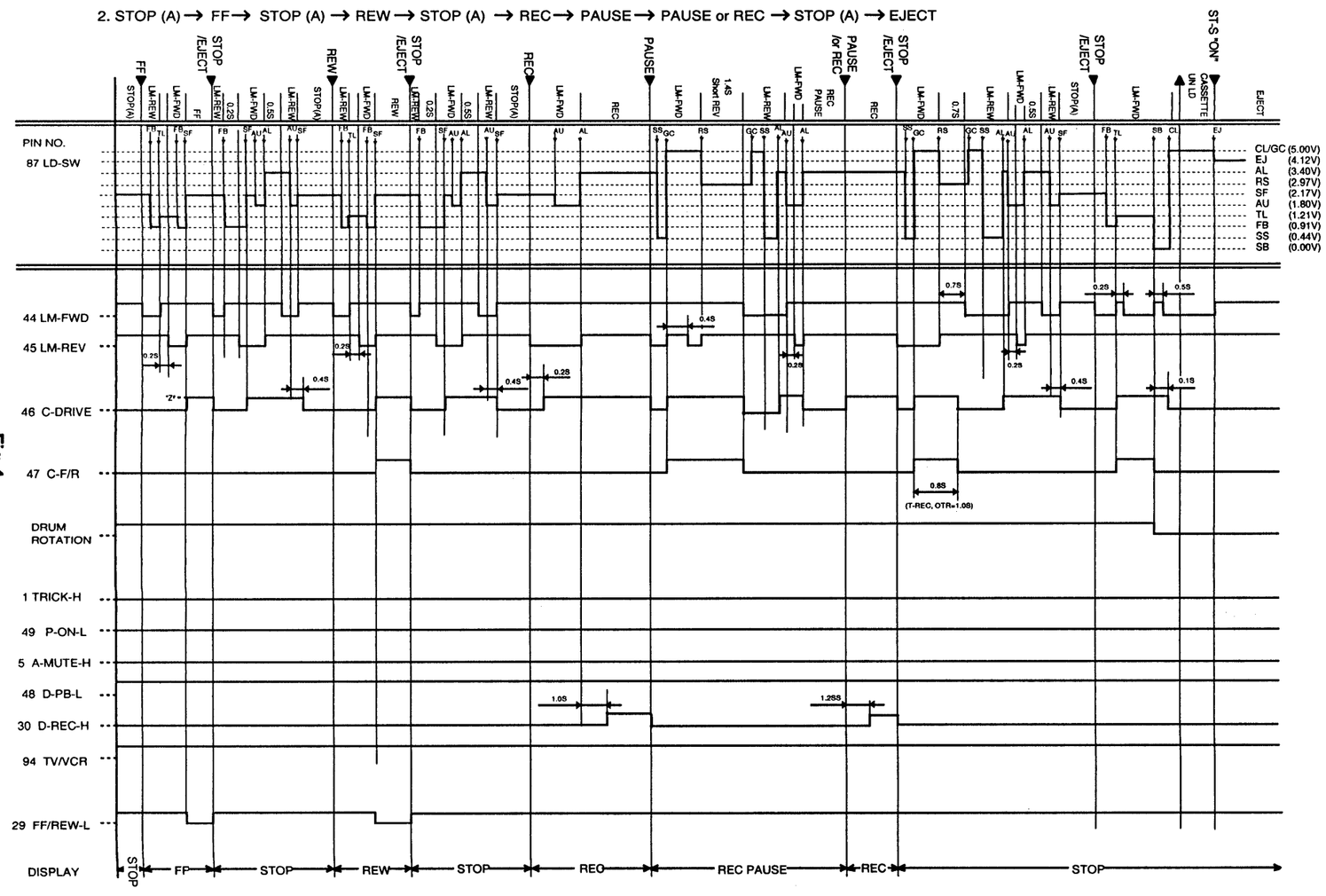


Fig.4

1-11-5

IC PIN FUNCTION DESCRIPTION

IC501 (SERVO / SYSTEM CONTROL IC)

"H" ≥ 4.5V, "L" ≤ 1.0V

Pin No.	IN/ OUT	Signal Name	Function	Active Level
1	OUT	TRICK-H	Special Play Back "H" Output	H
2	–	N.U.	Not used	–
3	OUT	C-CONT	Capstan Motor Control Signal	PWM
4	OUT	D-CONT	Drum Motor Control Signal	PWM
5	OUT	A-MUTE-H	Audio Mute Signal Output	H
6	OUT	SLP-H	SLP-H Output	H/L
7	OUT	LP/ SLP-H	LP/EP-H Output	H/L
8	OUT	D-PB-H	D-PB-H Output	H
9	OUT	OSD-BLUE-L	Blue Back Control Signal Output (ON= "L")	L
10	OUT	D-V SYNC	Dummy V-Sync Output	H/Hi-Z
11	IN	REMOC-ON	Remote Control Input Signal	L
12	IN	S-REEL	Supply Reel Rotation Input Signal	PULSE
13	–	N.U.	Not used	–
14	OUT	RF-SW	Video Head Switching Pulse	H/L
15	OUT	ROTA	Color Phase Rotary Changeover Signal	H/L
16	OUT	H-A-SW	H-A-SW Output	H/L
17	IN	H-A-COMP	Head Amp Comparator Input	H/L
18	IN	T-REEL	Take Up Reel Rotation Input Signal	PULSE
19	–	N.U.	Not used	–
20	OUT	REC-CTL	Capstan Motor Control Pulse Output at Rec Mode	H/L
21	OUT	STILL / SLOW-L	STILL/SLOW "L" Output	H/L
22	IN	C-FG	Capstan Frequency Generator Signal Input	PULSE
23	IN	D-PG	Drum Pulse Generator Input	PULSE
24	IN	D-FG	Drum Frequency Generator Input	PULSE
25	IN	PB-CTL	Capstan Motor Control Pulse Input at Playback Mode	PULSE
26	–	Vcc	Vcc	–
27	OUT	SOFT-H	* Rental Position Mode Switching Signal (Rental Position = "H"	H
28	OUT	OSD-CS	On Screen Display IC Control Chip Select Signal	L
29	OUT	FF/REW-L	FF/REW "L" Output	L
30	OUT	D-REC-H	D-REC Output	H
31	–	N.U.	Not used	–
32	–	N.U.	Not used	–
33	IN	P-DOWN-L	Power Down Detection Input	L
34	–	N.U.	Not used	–
35	–	GND	–	–
36	–	GND	–	–
37	IN	RESET	System Reset Signal (Usually= "H"/Reset= "L")	L
38	–	X-IN	Main Clock 14.31818MHz	–
39	–	X-out	Main Clock	–
40	–	GND	–	–
41	–	Vss	Vss	–
42	–	XC IN	Sub Clock 32 KHz	–
43	–	XC OUT	Sub Clock 32 KHz	–
44	OUT	LM-FWD	Loading Motor Forward Control Output	H
45	OUT	LM-REV	Loading Motor Reverse Control Output	H
46	OUT	C-DRIVE	Capstan Drive Output	H/Hi-Z
47	OUT	C-F/R	Capstan F/R Output	H/L
48	OUT	D-PB-L	D-PB-L Output	L
49	OUT	P-ON-L	Power-ON Control Signal	L
50	–	N.U.	Not used	–
51	–	N.U.	Not used	–
52	–	N.U.	Not used	–
53	–	N.U.	Not used	–
54	–	N.U.	Not used	–
55	–	N.U.	Not used	–
56	–	N.U.	Not used	–
57	–	N.U.	Not used	–
58	–	N.U.	Not used	–
59	–	N.U.	Not used	–
60	–	N.U.	Not used	–
61	OUT	G1	Display Digit Output	H
62	OUT	G2	Display Digit Output	H
63	OUT	G3	Display Digit Output	H
64	OUT	G4	Display Digit Output	H
65	OUT	a	Display Digit Output	H
66	OUT	b	Display Digit Output	H
67	OUT	c	Display Digit Output	H
68	OUT	d	Display Segment Output	H
69	OUT	f	Display Segment Output	H
70	OUT	g	Display Digit Output	H
71	OUT	h	Display Segment Output	H
72	OUT	i	Display Segment Output	H
73	OUT	j	Display Segment Output	H
74	OUT	e	Display Segment Output	H
75	–	-28V	-28V	–
76	–	Vcc	Vcc	–
77	OUT	PLL/ OSD-DATA	Tuner Control Signal (Data)/On-Screen IC Control(Data)	H/L
78	–	N.U.	Not used	–
79	OUT	PLL/ OSD-CLK	Tuner Control Signal (Clock)/On-Screen IC Control(Clock)	H/L
80	OUT	PLL-ENA	Tuner Control Signal (Enable)	H
81	–	Vcc	Vcc	–
82	–	VREF	Servo Reference Voltage	–
83	–	N.U.	Not used	–
84	–	N.U.	Not used	–
85	IN	KEY IN-1	A/D Key Data Signal Input	A/D
86	IN	KEY IN-2	A/D Key Data Signal Input	A/D
87	IN	LD-SW	Loading SW A/D Input	A/D
88	IN	AFC	Tuner AFC Voltage Signal Input	A/D
89	IN	PG-DELAY / TEST	RF-SW Signal Delay Adjust Voltage Input	A/D
90	IN	V-ENV / REC-SW	Video DC Envelope Voltage Input /Recording Safety SW Detect	A/D
91	IN	END-S	Tape End Position Detect	A/D
92	IN	ST-S	Tape Start Position Detect	A/D
93	IN	C-SYNC	Composite Sync Signal Input	PULSE
94	OUT	TV/VCR	RF Conv. ON/OFF Signal	H/L
95	–	N.U.	Not used	–
96	–	N.U.	Not used	–
97	–	N.U.	Not used	–
98	–	N.U.	Not used	–
99	OUT	INSEL-2	Input Selector Control Signal 2	H/L
100	OUT	INSEL-1	Input Selector Control Signal 1	H/L

Notes:

Abbreviation for Active Level

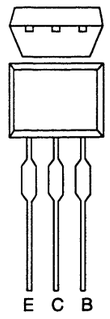
PWM ———— Pulse Wide Modulation

A/D ———— Analog - Digital Converter

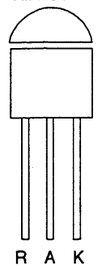
— This function enables you to improve the picture quality when playing back worn cassettes such as those rented from a video shop.

LEAD IDENTIFICATIONS

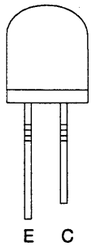
KSA1175 (Y, G)
KSR2203



AN1431T-(NSC)
L5431
KIA431



PT380FAB
ST-316R2-B



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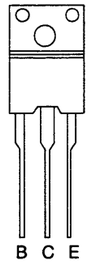
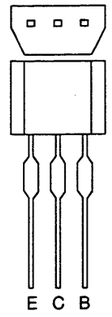
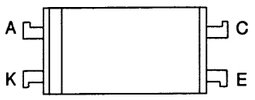


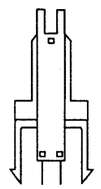


2SA1317 (S, T)
2SA1346
2SA608SP (E, F, G)
2SC2839 (E, F)
2SC3576
2SC536SP (E, F, G)
KRA103M
KRC103M
KSC2785(Y, G, L)
KSR1203
KTA1266 (Y, GR)
KTA1267 (Y, GR)
KTC3193 (Y)
KTC3199 (Y, GR, BL)

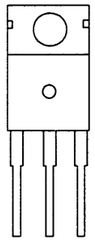
PC17T1
PC817 (B, AB, A)
PS2501-1(D, H, L, M, W)
ON3131-R
TLP521-1 (GR)



SG-231



KSC5020 (O, R)



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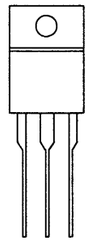

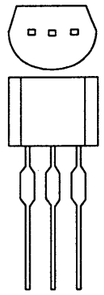

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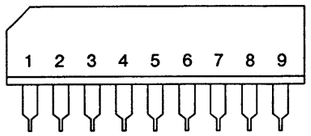
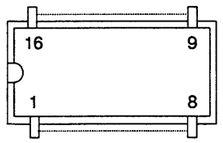
2SC4204
2SD734F-NP-AQ
2SD734G-NP-AQ

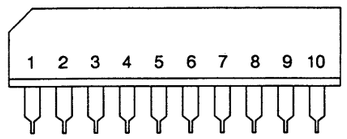
TA7291S

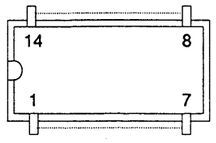




NJU4052BD
TC4052BP
UPD4052BC

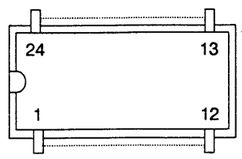
LB1641





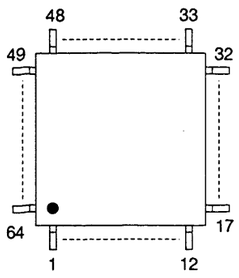
KIA339P
NJM2901N
NJM324D

LA70011
LC74723-9068



Note:
A: Anode
K: Cathode
E: Emitter
C: Collector
B: Base
R: Reference

LA71020M



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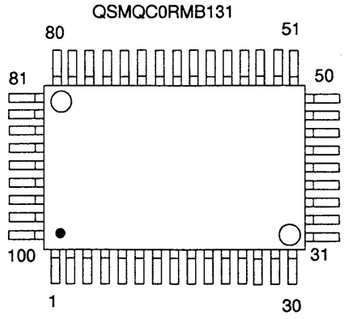
QSMQC0RMB131



EXPLODED VIEWS AND PARTS LIST SECTION

VIDEO CASSETTE RECORDER

VT-MX421A / VT-MX421AC

EXPLODED VIEWS AND PARTS LIST SECTION
- **Exploded views**
- **Parts List**

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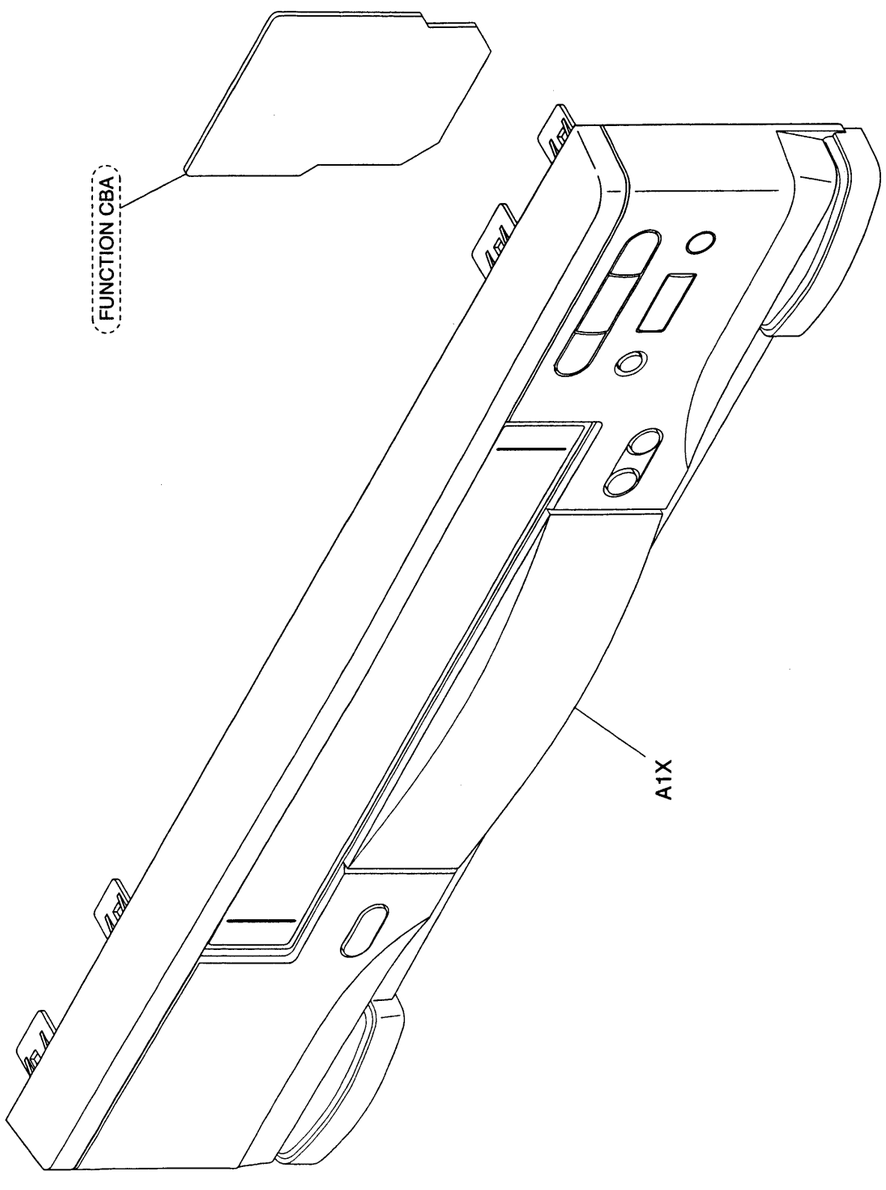
Exploded Views 3-1-1
Mechanical Parts List 3-2-1
Electrical Parts List 3-3-1

EXPLODED VIEWS

Front Panel

See Electrical Parts List for parts with this mark.

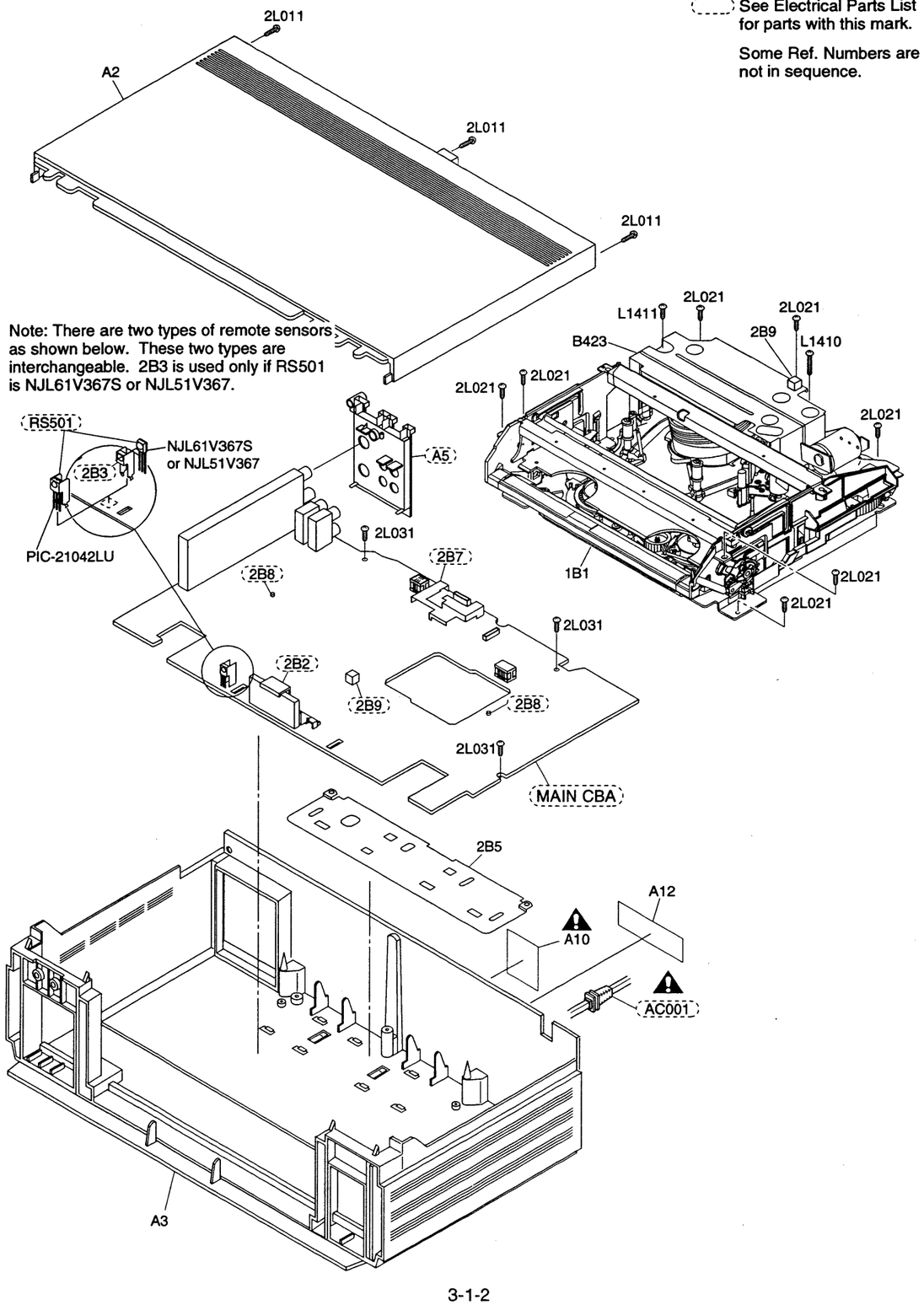


Cabinet

See Electrical Parts List for parts with this mark.

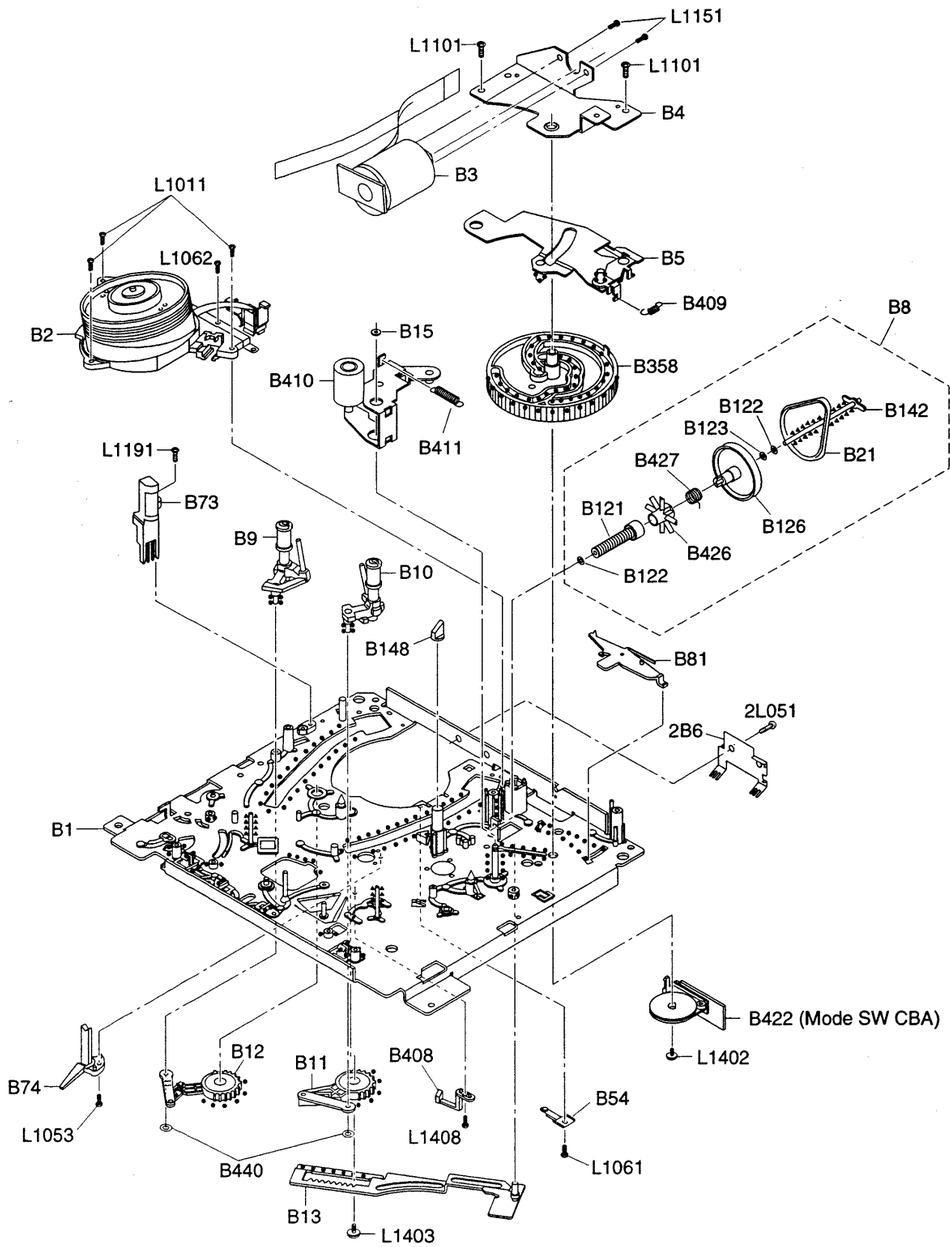
Some Ref. Numbers are not in sequence.

Note: There are two types of remote sensors as shown below. These two types are interchangeable. 2B3 is used only if RS501 is NJL61V367S or NJL51V367.



Deck Mechanism View 1

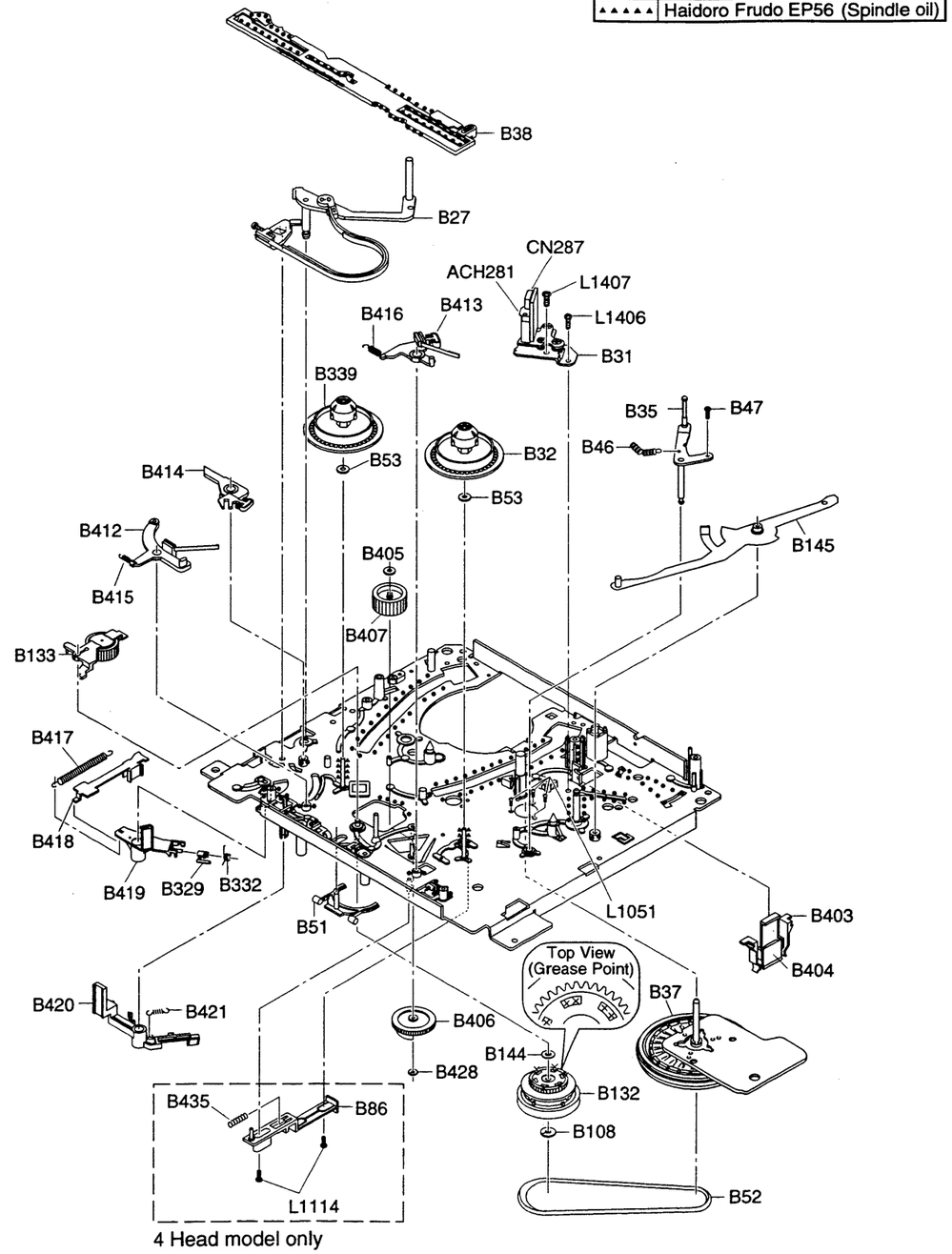
Mark	Description
●●●●●	Floil G-374G (Blue grease)
▲▲▲▲▲	Haidoro Frudo EP56 (Spindle oil)



Some Ref. Numbers are not in sequence.

Deck Mechanism View 2

Mark	Description
×××××	Sankohl FG-84M (White grease)
●●●●●	Floil G-374G (Blue grease)
▲▲▲▲▲	Haidoro Frudo EP56 (Spindle oil)

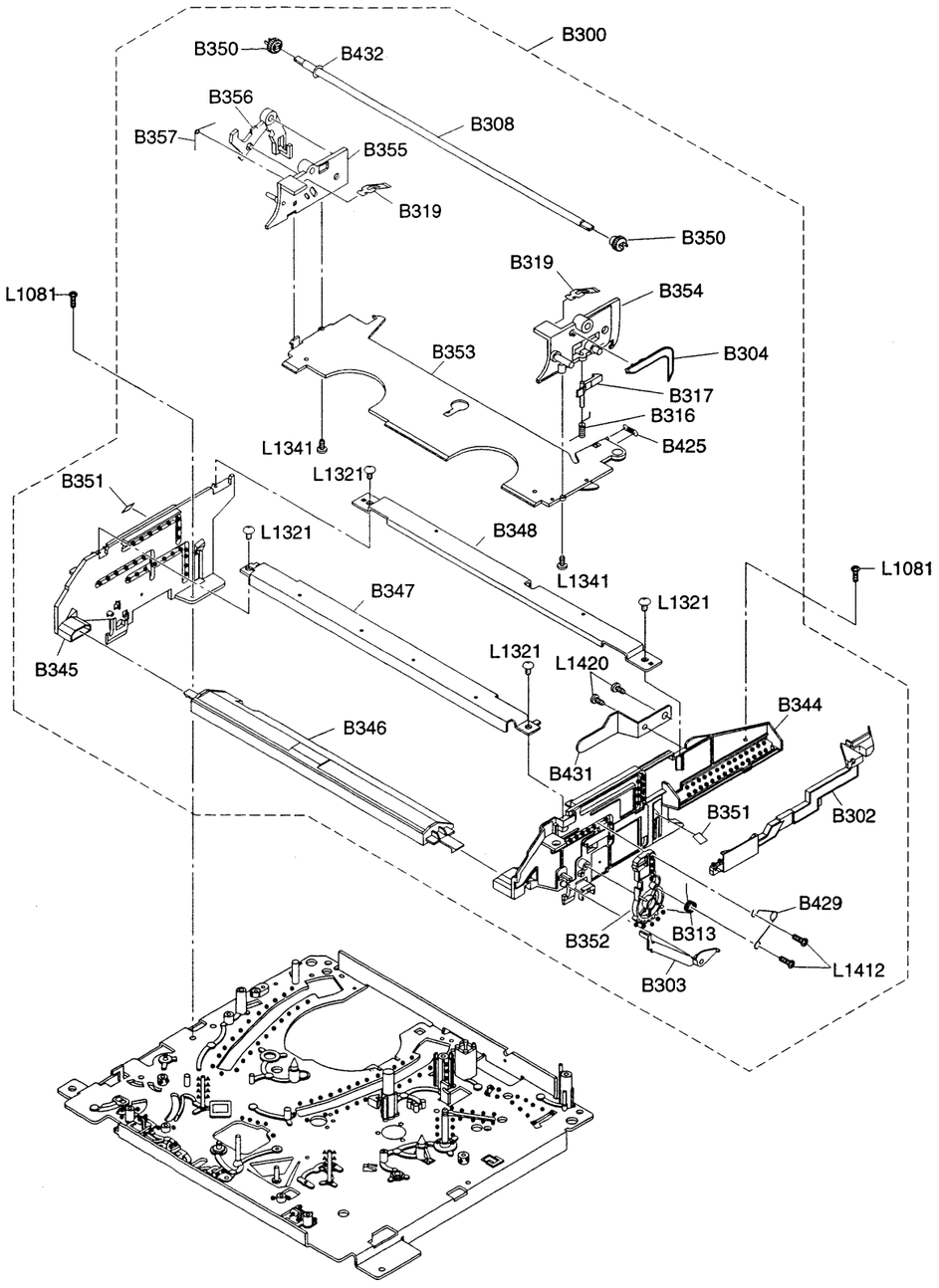


4 Head model only

Some Ref. Numbers are not in sequence.

Deck Mechanism View 3

Mark	Description
●●●●●	Floil G-374G (Blue grease)
▲▲▲▲▲	Haidoro Frudo EP56 (Spindle oil)



Some Ref. Numbers are not in sequence.

MECHANICAL PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION
		FOR FINAL ASSEMBLY
2B 2	TE12383	HOLDER
2B 3	TJ13457	HOLDER
2B 5	TE12378	PLATE SHIELD
2B 6	TJ13458	DECK EARTH PLATE
2B 7	TE12378	SHIELD
2B 8	TE12453	BUSH
2B 9	TE12422	CUSHION
2L 011	TJ12534	SCREW (3X12)
2L 021	TJ12534	SCREW (3X12)
2L 031	TJ12535	SCREW (3X8)
2L 051	TJ12536	SCREW (M3X5)
A1X	TE12489	FRONT PANEL
A 2	TE12352	CASE TOP
A 5	TE12357	JACK BOARD
⚠ AC 001	TE11946	AC CORD
ACH281	TJ13442	ACE HEAD
B 2	TC10906	CYLINDER ASSEMBLY
B 3	TE12427	LOADING MOTOR ASSEMBLY
B 4	TE12396	MOTOR HOLDER
B 5	TE12445	CASSETTE DRIVE LEVER
B 8	TJ13443	PUULEY
B 9	TE12446	MOVING GUIDE (S)
B 10	TE12447	MOVING GUIDE (T)
B 11	TE12438	LOADING ARM (T)
B 12	TE12437	LOADING ARM (S)
B 13	TE12442	LOADING LEVER
B 15	TJ10155	WASHER
B 21	TE12409	LOADING BELT
B 27	TE12436	TENSION
B 31	TE12434	AC HEAD ASSEMBLY
B 32	TE12449	REEL BASE
B 35	TE12435	TAPE GUIDE
B 37	TC10873	CAPSTAN MOTOR
B 38	TE12354	MODE LEVER
B 46	TE12404	SPRING
B 47	TJ10222	SCREW
B 51	TE12392	FF ARM
B 52	TE12408	CAPSTAN BELT
B 53	TJ10228	WASHER
B 54	TE12441	SPRING
B 73	TJ13444	FE HEAD
B 74	TE12366	PRISM
B 81	TE12363	M LEVER HOLDER
B 86	TE12486	BRAKE
B 108	TJ10228	WASHER
B 121	TE12385	WORM
B 122	TJ10165	WASHER
B 123	TJ10166	WASHER
B 126	TE12384	PULLEY
B 132	TJ13445	CLUTCH
B 133	TE12439	IDLER
B 142	TJ10173	SHAFT LOCK
B 144	TJ10234	WASHER
B 145	TE12429	MAIN LEVER
B 148	TE12387	TG CAP
B 300	TE12426	FL ASSEMBLY
B 302	TE12371	RACK
B 303	TE12374	DOOR OPENER
B 304	TE12373	DOOR OPENER
B 308	TE12397	SLIDER SHAFT
B 313	TE12398	SPRING
B 316	TJ12658	SPRING
B 317	TE12411	LOCK ARM
B 319	TJ13446	SPRING
B 329	TJ12627	HOLDER KICK ARM
B 332	TJ13447	SPRING
B 339	TE12448	REEL BASE
B 344	TE12362	CASSETTE GUIDE (R)
B 345	TE12361	CASSETTE GUIDE (L)
B 346	TE12369	FRONT GUIDE
B 347	TE12376	GUIDE HOLDER (F)
B 348	TE12377	GUIDE HOLDER (R)
B 350	TE12395	SLIDER GEAR
B 351	TE12412	MIRROR
B 352	TE12372	CASSETTE DRIVE GEAR
B 353	TE12444	CASSETTE PLATE
B 354	TE12356	SLIDER (R)
B 355	TE12355	SLIDER (L)
B 356	TE12375	LOCK LEVER
B 357	TE12415	SPRING
B 358	TE12351	CAM
B 403	TE12368	ACH-9A
B 404	TE12394	ACH-9B
B 405	TJ12633	WASHER
B 406	TE12389	SENSOR GEAR
B 407	TE12388	M GEAR
B 408	TE12391	PRISM
B 409	TE12402	SPRING
B 410	TE12428	PINCH ROLLER
B 411	TE12403	SPRING
B 412	TE12432	S BRAKE LEVER
B 413	TE12431	M BRAKE (T)
B 414	TE12433	M BRAKE (S)
B 415	TE12399	SPRING
B 416	TE12405	SPRING
B 417	TE12406	SPRING
B 418	TE12416	TENSION PLATE
B 419	TE12365	BT ARM
B 420	TE12364	REC ARM
B 421	TE12407	SPRING
B 422	TE12443	MODE SW CBA
B 423	TE12358	SHIELD PLATE
B 425	TE12413	SPRING
B 426	TE12386	KICK PULLEY
B 427	TE12401	SPRING
B 428	TJ12633	WASHER
B 429	TE12418	SPRING
B 430	TJ13448	SPRING
B 431	TJ13449	LDG PLATE
B 432	TJ13451	WASHER
B 435	TC10907	SPRING
L 1011	TJ10174	SCREW (M3X9)
L 1051	TJ13452	SCREW (M2.6X6)
L 1053	TJ13452	SCREW (M2.6X6)
L 1061	TE12417	SCREW
L 1062	TJ13014	SCREW (M2.6X8)
L 1081	TJ10176	SCREW (3X6)
L 1101	TJ13453	SCREW (3X10)
L 1114	TJ13454	SCREW (M2X6)
L 1151	TJ10178	SCREW (M3X4)
L 1191	TJ13016	SCREW (M2.6X12)
L 1321	TJ12535	SCREW (3X6)
L 1341	TJ12687	SCREW (M2.6X8)
L 1402	TJ13454	SCREW (M2X6)
L 1403	TJ10119	SCREW (3X10)
L 1406	TJ13455	SCREW (M2.6X4)
L 1407	TJ13014	SCREW (M2.6X8)

SYMBOL-NO	P-NO	DESCRIPTION
L 1408	TJ12636	SCREW (M2.6X6)
L 1410	TJ13441	SCREW (M3X25)
L 1411	TJ10176	SCREW (M3X6)
L 1412	TJ12687	SCREW (M2.6X8)
L 1420	TJ12535	SCREW (M3X8)
		FOR ACCESSARIES
X 1	TE12483	REMOTE CONTROL UNIT
X 3	5857952	RF CABLE

ELECTRICAL PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION
		SEMI-CONDUCTORS
D 001	TC10752	DIODE 1N4005
D 002	TC10752	DIODE 1N4005
D 003	TC10752	DIODE 1N4005
D 004	TC10752	DIODE 1N4005
D 005	TC10753	DIODE PR1004
D 006	TC10754	DIODE 1N4148M
D 007	TC10754	DIODE 1N4148M
D 008	TC10754	DIODE 1N4148M
D 012	TC10753	DIODE PR1004
D 013	TC10753	DIODE PR1004
D 015	TC10757	DIODE PR3002
D 016	TC10877	DIODE SB140
D 017	TC10753	DIODE PR1004
D 018	TC10759	ZENER DIODE UZ-9.1BSC
D 052	TC10754	DIODE 1N4148M
D 053	TC10759	ZENER DIODE UZ-9.1BSC
D 054	TC10754	DIODE 1N4148M
D 055	TC10752	DIODE 1N4005
D 057	TC10754	DIODE 1N4148M
D 058	TC10787	ZENER DIODE UZ-30BSB
D 059	TC10758	ZENER DIODE UZ-6.8BSA
D 301	TC10754	DIODE 1N4148M
D 302	TC10754	DIODE 1N4148M
D 303	TC10754	DIODE 1N4148M
D 304	TC10754	DIODE 1N4148M
D 501	TC10754	DIODE 1N4148M
D 502	TC10754	DIODE 1N4148M
D 510	TC10754	DIODE 1N4148M
D 511	TC10886	LED SLR-938CV-7
D 701	TC10762	ZENER DIODE UZ-33BSD
⚠ IC 001	TC10763	PHOTOCOUPLER PC-17T1
IC 002	TC10764	IC KA431Z
IC 251	TC10901	IC LA70011
IC 301	TC10888	IC LA71020M
IC 501	TC10902	IC SY/M37779M5A117GP[VT-MX421A]
IC 501	TC10903	IC SY/M37779M5A118GP[VT-MX421AC]
IC 502	TC10768	IC LM339N
IC 503	TC10769	IC LM324N
IC507A	TC10771	IC TA7291S
IC507B	TC10772	IC LB1641
IC 751	TC10773	IC HCF4052BEY
IC 851	TC10774	IC LC74723-9068
⚠ Q 001	TC10776	TRANSISTOR KSC5020(O)
⚠ Q 002	TC10775	TRANSISTOR 2SC3576
Q 053	TC10777	TRANSISTOR 2SD734F-NP-AQ
Q 054	TC10778	TRANSISTOR KTC3199(Y)
Q 055	TC10779	TRANSISTOR KRA103M
Q 303	TC10779	TRANSISTOR KRC103M
Q 304	TC10778	TRANSISTOR KTC3199(Y)
Q 305	TC10783	TRANSISTOR KTC3193(Y)
Q 307	TC10783	TRANSISTOR KTC3193(Y)
Q 308	TC10784	TRANSISTOR KTA1266(Y)
Q 310	TC10778	TRANSISTOR KTC3199(Y)
Q 311	TC10783	TRANSISTOR KTC3193(Y)
Q 401	TC10785	TRANSISTOR 2SC3331(T)
Q 402	TC10785	TRANSISTOR 2SC3331(T)
Q 403	TC10777	TRANSISTOR 2SD734F-NP-AQ
Q 404	TC10779	TRANSISTOR KRA103M
Q 405	TC10785	TRANSISTOR 2SC3331(T)
Q 501	TC10779	TRANSISTOR KRA103M
Q 503	TC10862	PHOTO TRANSISTOR ST-316R2-B
Q 504	TC10862	PHOTO TRANSISTOR ST-316R2-B
Q 511	TC10778	TRANSISTOR KTC3199(BL)
Q 514	TC10785	PHOTO TRANSISTOR PT380FAB
Q 851	TC10782	TRANSISTOR KTA1267(Y)
		TRANSFORMERS
⚠ T 001	TC10872	PULSE TRANS
T 401	TA12565	COIL, OSC
		COILS
J 40	TA12561	COIL 100UH
J 89	TA12561	COIL 100UH[VT-MX421A]
⚠ L 001	TA12553	COIL 33MH
L 002	TA12575	CORE
L 003	TA12554	CORE
L 004	TA12554	CORE
L 007	TA12554	CORE
L 008	TA12555	COIL 22UH
L 009	TA12555	COIL 22UH
L 252	5121289	COIL 22UH
L 304	TA12574	COIL 56UH
L 307	TA13031	COIL 22UH
L 502	TA12562	COIL 12UH
L 505	TA12561	COIL 100UH
L 506	TA12561	COIL 100UH
L 507	TA12561	COIL 100UH
L 702	TA13033	COIL 18UH
L 705	TA12556	COIL 15UH
L 851	TA13032	COIL 18UH
L 853	TA12563	COIL 4.7UH
		CRYSTALS
X 301	TA12551	X'TAL 3.579545MHZ
X 502	TA12552	X'TAL 32KHZ
		MISCELLANEOUS
CL 281	TC10899	PARALLEL WIRE 2P
CN 287	TE12457	CONNECTOR
CN 501B	TJ13456	CONNECTOR
CN 502	TE12458	CONNECTOR
CN 503	TE12455	CONNECTOR
CN 504	TE12454	CONNECTOR
CN 505	TE12456	CONNECTOR
CN 507	TE11939	CONNECTOR
CN 651	TE11958	CONNECTOR
⚠ F 001	TE11947	FUSE 1A/250V
FH 001	TE11948	FUSE HOLDER
FH 002	TE11948	FUSE HOLDER
FIP502	TC10895	LCD DISPLAY SVV-4SS05
PS501	TE11953	SENSOR SG231
⚠ SA 001	TJ13459	SURGE ABSORBER JVR-10N471K
RS 501	TC10904	REMOTE RECEIVER NJL61V367S
TU 701	TC10897	TUNER UNIT TMLH2-009A
SW 281	TC10894	MODE SWITCH
SW 501	TE11957	SWITCH
SW 502	TE11957	SWITCH
SW 505	TE11957	SWITCH
SW 506	TE11941	SWITCH
SW 662	TE11957	SWITCH
SW 665	TE11957	SWITCH
SW 671	TE11957	SWITCH
SW 673	TE11957	SWITCH

SYMBOL-NO	P-NO	DESCRIPTION	SYMBOL-NO	P-NO	DESCRIPTION
SW 674	TE11957	SWITCH			
SW 676	TE11957	SWITCH			
SW 701	TE11942	SWITCH			

HITACHI

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VT-MX421AC

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